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ABSTRACT

This final report describes a federally funded project to improve the instructional design and use of general software with students who have special learning needs. An 86-page guide, which was the project output, is provided. This "Guide for the Use of General Software with Students Who Have Special Learning Needs" is designed to help teachers make use of existing software. Its 30 lesson plans provide the basis for adapting general use software to fit the needs of students with mild to moderate learning disabilities, emotional impairments, or mental retardation. The format of the lessons includes: an overview of the activity, the types of software used in the lesson, instructional goals, student prerequisite skills, teacher preparations, steps for conducting the lessons, and follow-up activities. Each lesson also has information to help teachers decide which lessons are appropriate for use with their students. The guide also provides: a list of producers for each software product identified in the guide, a list of 69 publishers and addresses, and descriptions of agency information resources. (SW)

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ED 385 970

FINAL REPORT

FOR

CONTRACT #300-86-0063

"Improving the Instructional Design and Use of General Software for Practical Application with Handicapped Students"

Submitted to:

U.S. Department of Education
Special Education Programs

Macro Systems, Inc.

June, 1988

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I. INTRODUCTION

I. INTRODUCTION

The U.S. Department of Education, Office of Special Education Programs, on February 24, 1986 issued RFP 86-029 entitled "Improving the Instructional Design and Use of General Software for Practical Application with Handicapped Students." The Department saw a need (1) to develop information or guidelines that will help teachers and administrators make more effective use of currently available general software in working with special needs children; and (2) to develop guidelines that will help developers and distributors of software to refine the design of general software to better meet the needs of teachers who instruct handicapped children having varied learning needs." (RFP 86-029, pg. 1, Statement of Work).

Background

The impetus behind this solicitation was the concern that the development and publication of special education software was lagging far behind the interest in and need for technology materials for special needs students, in particular, those with cognitive impairment. Despite ample evidence in the literature of steadily increasing use of the microcomputer as a tool for educationing special education students, the actual quantity of available software for this purpose is very small.

It was felt that publishers are reluctant to invest in the development of software specifically targeted to handicapped students, that there is a belief that special education is not a lucrative market and that a set of guidelines for designers and developers of software could highlight those elements of design that could make general use software more useful to all students, as well as handicapped students.

This Federal investment was designed to stimulate the private sector to design and develop software that could be more useful for instructing cognitively impaired students and to encourage teachers to make better use of general software in working with these students. It was part of the OSEP overall plans to maximize the use of technology in special education.

On April 4, 1986, Macro Systems, Inc., submitted its proposal and in September was selected for the contract award. At the time of the solicitation Macro had just completed a teacher's guidebook under contract to Grolier Electronic Publishing, Inc.. Called "Using Grolier's Productivity Software Across the Curriculum," it contains over 100 detailed lesson plans for use in mathematics, language arts, science, social studies and library science, with a chapter also devoted to special education. The expertise gained by Macro in the performance of the Grolier contract was advantageous in meeting the challenge to prepare a guidebook for teachers to help them make use of general software for instructing handicapped students. In addition, Macro had developed good relationships with several publishers of educational materials, including software, over several years of contract work for OSEP. Critical to the acquisition of the contract and the later success of the project, has been the ability to involve knowledgeable publishers as advisory board members.

In Macro's response to the RFP, we indicated our plans to use teacher consultants in the development of lessons for the guidebook. This strategy had served us well in preparing the Grolier product. We have great respect and admiration for the creative educators who lead the way for their colleagues in trying out new strategies that can improve instruction. Materials would be designed to be practical, easy-to-use, and mindful of the many demands on teacher time. Our focus was, in the planning and also in the execution, on products that are effective and efficient.

A Commitment to Quality Products

Macro's approach to producing these two products was guided by a strong commitment to quality product development. Based on our preliminary review of the literature and software in preparation for writing a proposal, we planned a design for the general use software guidebook focused on the need of the classroom teacher for information presented in a format that is targeted to assist in meeting IEP objectives and free of excess verbiage. Our plans for the software design brochure were focused on responding to the reality that few designers, developers and publishers of general software have any understanding of the nature and needs of cognitively impaired learners and that their decisions are often based solely on economics.

In all of Macro's product development work, we have directed our efforts on producing materials that could be commercially publishable, in the belief that commercial publishers with budgets to promote, demonstrate and distribute products offer the opportunity for the widest possible dissemination. Indeed, we are aware that many good products never find their way into classrooms because of limited funds to make teachers aware of their existence. With several products already successfully placed with publishers, we felt sure that we could develop a guidebook to the use of general software in the instruction of special needs students that would be commercially viable.

Macro's Approach to the Project

A key component of Macro's approach to this project was the experience and expertise of its creative special education staff in designing, developing, and producing high quality instructional materials. This expertise, together with our well-developed relationships with the software publishing community, was used to deliver two products, tailored to the needs and the nature of their respective target audience.

A comprehensive analysis of cognitively impaired learner characteristics was facilitated by the experience of having developed similar analysis for previous projects involving instructional materials design and production. We have the distinct advantage of insights gained in the completion of a teacher's guidebook to the use of productivity tools published by Grolier Electronic Publishing, Inc.

Throughout the life of this project, we directed our efforts to the end result of stimulating teachers and software publishers to try new approaches, to accept the challenge of improving the use of technology by special needs students, and to be enriched in the process.

II. THE PROCESS

II. THE PROCESS

1. CRITICAL FACTORS

Macro identified several critical factors that were to govern the success of this project:

- A careful and comprehensive search of current literature using both print media and databases as sources of information
- Preparation of an analysis of cognitively impaired learner characteristics and instructional characteristics related to software use
- Review Teams that reflected the appropriate constituencies involved in this effort
- A commitment to the real needs of the classroom teacher
- An understanding of the realities of the commercial software publishing market
- An innovative approach to the design of the two products
- A focus on marketability and dissemination issues

2. PROJECT TEAM

Macro was pleased to provide the Department of Education with an outstanding team of professionals to conduct this project. Macro recognized that this project called for the collaboration of special and regular teachers, of instructional materials experts and technology experts, and of representatives of the commercial publishing industry. The selection of individuals to lead this effort was made with great care and is reflective of Macro's commitment of the achievement of high quality results.

As Officer-in-Charge, Dr. Louise S. Appell provided oversight to the entire project and ensured programmatic and fiscal responsibility and quality. Dr. Appell, a Vice President of Macro, brought to this project her extensive experience in educational product development, as well as in program development and management of many projects in educational services to handicapped persons. She is also a co-owner of Macro and was able to act quickly and independently to commit and ensure the firm's resources to this project.

Dr. Appell holds a Ph.D. and an M.A. in Special Education from the University of Kentucky and a B.A. in Psychology from Smith College. Her main area of focus at Macro has been the development of instructional products that solve learning problems with innovative, creative, and pedagogically sound solutions and in educational services that emphasize the use of unique strategies. Dr. Appell has successfully completed several other federally funded projects focused on the development of instructional materials for handicapped learners.

As Project Director for the first year of the project, Dr. Carl T. Cameron provided direction to staff, Review Group, and consultants, and was responsible for the day-to-day operation of the project. He directed the activities of design, development, and materials and the field testing and preparation of a marketing plan.

Dr. Cameron has a Ph.D. in Special Education from the University of Florida, an M.S. in Special Education and a B.A. in Psychology from California State. Throughout his career, he has been intensively involved in the use of technology in instruction, focused on the development of both products and services.

His responsibilities in several of these projects included the preparation of many products including manuals, texts, slide-sound and video productions. He is familiar and comfortable with the process involved in developing a design targeted to the needs of the population to be served and in managing the multiple factors that go into the production, review, and field testing stages.

His experience as a special education teacher and as a teacher trainer were valuable assets to this project.

When Dr. Cameron left the project to assume a new position as faculty at George Mason University, Macro was fortunate to be able to obtain a commitment from Dr. Laura J. Colker. Dr. Colker holds an Ed.D. in Human Development with concentration in Early Childhood Education, Curriculum Development and Administration of Higher Education from The George Washington University. She is the author of over 80 articles and publications for children, teachers and parents.

She brought to the project specific expertise in producing high quality print publications, highly specialized knowledge in curriculum development, and an impressive record of successful accomplishments.

The originally proposed Mr. Joseph Kelly for Research Analyst was no longer available when the contract was awarded. Luckily, Ms. Kate Wholey was able to join us. She was invaluable to Dr. Cameron as well as to Dr. Colker. She had already worked on Macro's OSEP funded project "Social Skills on the Job" and was very familiar with the process of designing and developing instructional materials. Her special strength is in her ability to conduct fine quality reviews of research and other literature and also to track a plethora of material as it goes out to be field tested, is returned with comments and then modified.

Macro identified three teacher consultants to assist in the preparation of the software use product. J. Craig Dickinson and Alice Lucas have already been described in connection with their role on the Review Group. In addition, we identified Julie Bader, a Teacher Resource Specialist working in the Montgomery County, Maryland public schools, whose special responsibility is assisting special education teachers with their technology needs, and developing curricula to use the technology.

3. REVIEW OF LITERATURE AND SOFTWARE

On January 6, 1987, Macro sent to the Department of Education Deliverable #1, a document entitled "Analysis and Synthesis of the Literature related to Cognitively Impaired Learners and General Use Software." This document represented a substantial effort to gather from the available literature information that would be useful to the design of the publications that are the products of this project. It was on the basis of a careful study of the results of the review that draft procedures from the Classroom Use of Software and draft procedures for a software design brochure were prepared for discussion with the two review groups.

4. THE REVIEW GROUPS

The Review Groups represented an assemblage of experts in special education, regular education, instructional materials development, technology applications, software publishing, software design and development, and marketing. These groups served as the mechanism for ensuring that the approaches and the design for the products were responsive to the needs of educators, cognitively impaired students and software designers/developers and publishers.

For the team reviewing and varifying the validity of the procedures for software use materials, the following persons served.

- Judy Wilson, Ed.D. is currently Project Director of the Microcomputer Information Coordination Center, a statewide microcomputer consortium for Kansas. She brings to this team many years of work in education focused on the modification and adaption of instructional media and materials and technology to meet the needs of handicapped students.

- Joan Thormann, Ph.D. is a consultant in computer technology with the Massachusetts Department of Education, Division of Special Education. Her special area of expertise is in instructional applications of microcomputers in special education.

- June E. Foster is Director of the Special Needs Center at Technical Education Research Centers. She will add her knowledge of instructional software design and her experience with projects that articulate software use with classroom instruction.

- Lynda L. West, Ph.D. is an Associate Professor of Practical Arts and Vocational-Technical Education at the University of Missouri. Her background in career education for handicapped children and issues in vocational education for the handicapped will add a special dimension to a product for teachers of the cognitively impaired.

- J. Craig Dickinson is a classroom teacher, a regular educator, and the Director of the Gifted and Talented Program at Asa Adams School in Orono, Maine. He is a creative, productive professional with a special talent for designing innovative strategies for the integration of microcomputer technology in the classroom.

- Alice R. Lucas is a sixth grade social studies teacher working with mainstreamed learning handicapped students. Much of her work involves using microcomputers with word processing programs, modifying general education software for use in her class. She will contribute to this team experience as a writer of lessons to accompany software products as well as experiences on the design team for Macro's World History Database.

- William Downall is Senior Designer and Project Manager for the software development firm Intentional Educations. He has been closely involved in two products with Macro and is very sensitive to the needs of teachers, having been a seventh-grade teacher for 5 years. He will offer the software use Review Team a special kind of perception.

- Kathleen M. Hurley is Vice President, Microcomputer Software, Grolier Electronic Publishing. Her educational background is in special education and her early career included teaching special education classes. The specialized knowledge of software publishing coupled with the sensitivity to the needs of special education teachers will provide a special contribution to the teams.

The team for reviewing and verifying the validity of the procedures for software design materials included William Downall and Kathleen Hurley and added the following persons:

- Charles F. Eisenberg is Vice President, Computer Division, Milliken Publishing Company. He is responsible for administration of a division that is concerned with the computer needs of young people and has a special interest in the transition of handicapped students from school to work.

- Andrew W. Bingham is President of DLM Teaching Resources, a publisher of instructional materials specifically designed for the below-average student. He is especially sensitive to the needs of handicapped learners as the parent of a handicapped daughter.

- Sherry Reynolds is Vice President of the Society for Visual Education, a publisher of instructional materials for pre-kindergarten through high school. She has a strong interest in sales and marketing issues and will bring that perspective to the team.

- Stanley Love is President of Love Publishing Company, a leading publisher of educational textbooks and instructional media. He has been an active advocate for exceptional children and will bring his advocacy position to the discussion table.

- D. F. Corr is a private consultant to several educational publishing and production companies. She will bring her practical knowledge of software design issues and the needs of the designers to the team.

- Richard J. Casabonne is President of Richard Casabonne Associates, a microcomputer consulting company. He has a long history of professional experience in the area of instructional technology and a special perspective on the software publishing market as a Director of TALMIS. He will be a valuable resource to the team.

Only William Downall, Sherry Reynolds, and Dee Corr were able to attend the meeting convened in Silver Spring. Other members of the team responded to mail and phone interviews with their input.

5. FIELD TESTING

An integral component in the development of any worthy and useful product is the field testing of that product with potential users.

After much discussion in the Review Group meeting on the teacher use product, it was decided that each Review Team member would identify teachers who would be willing to review the materials. The group rejected the original idea of sending the materials to 50 randomly selected members of the Technology and Media Division of the Council for Exceptional Children on the basis of their belief that the TAM members would only represent people who are already enthusiastic about using technology. They suggested that it would be better to have reviews from a less sophisticated viewpoint.

A form "Recommendation of Teachers Reviews" was sent out to all Review Group members after the meeting. Based on the recommendations as well as a list of reviewers who have been involved in field testing other Macro-developed products, 65 copies of the Guidelines for the Use of General Software with Students who have Special Learning Needs were sent out to be reviewed. A copy of the rating form used to solicit input is included here as Exhibit A. A total of 33 returned, completed ratings were recorded and analyzed. These comments served to guide the modification of the product.

Field testing for the Design brochure was accomplished by mailing copies of the draft brochure to members of the Review Group who were unable to attend the January meeting and to members of the Review Group who attended and agreed to pass on the brochure to two field reviewers each. Changes to the brochure were made in accordance with these reviews.

6. MARKETING AND DISSEMINATION

Macro has always viewed dissemination as a critical component in the successful completion of a product-oriented project. When it is possible to market a product to a reputable publisher who is willing to commit resources to product promotion, we believe it greatly increases the chances that the product will be available to the largest number of the target audience.

There was some discussion at the Review Group meeting of finding a company that would underwrite the printing and distribution of the "Guidelines" book to all special education teachers. Subsequently, inquiries were made and the advice and assistance of LINC Resources was sought. As of this date, it seems more responsible to pursue a commercial publisher. Permission to copyright was obtained from the Copyright Administrator and we applied for a copyright. AGS has expressed interest in the product and has been granted the right to review it for possible publication. They must make a decision within 30 days or we will send it on to another publisher.

PLEASE RETURN BY _____

Guide For The Use Of General Software
With Students Who Have Special Learning Needs

Rating Form

I. Please circle one number to indicate your impression of each section (1 indicating the lowest score and 5 the highest). Continue your comments on the back, if necessary, and please write legibly so that we may benefit from your efforts. Thank you!

	low				high	Comments
Introduction (page 1)	1	2	3	4	5	
Using This Guide (4)	1	2	3	4	5	
Lesson Selection Guide (9)	1	2	3	4	5	
Appendix A: Types of Productivity Tools	1	2	3	4	5	
Appendix B: General Use Software Listing	1	2	3	4	5	
Appendix C: Alternative Devices	1	2	3	4	5	
Appendix D: Publishers	1	2	3	4	5	
Appendix E: Informational Resources	1	2	3	4	5	
Appendix F: Publications	1	2	3	4	5	

II. Please select ten lessons to review. In judging each, the following questions may help to guide your thinking:

a) Is the purpose of the lesson clear, and specific to the point where it could be used to meet IEP objectives?
b) Are directions to teachers and students thorough?
c) Is the sequence of instruction logical?
d) Is content accurate?
e) Could the use of any one tool within the lesson stand on its own merits or is content "forced" into inappropriate software?

	low				high	Comments
A Drum Roll, Please (page 14)	1	2	3	4	5	
A Home Of My Own (17)	1	2	3	4	5	
Answer That Question! (20)	1	2	3	4	5	
Career Interests (23)	1	2	3	4	5	
Drug Education (27)	1	2	3	4	5	
Electronic Mail (31)	1	2	3	4	5	
Exercise And You (34)	1	2	3	4	5	
Favorite Books (38)	1	2	3	4	5	
Germ Busters! (42)	1	2	3	4	5	
How High, How Long, How Deep? (46)	1	2	3	4	5	
How Many Heads? How Many Legs? (51)	1	2	3	4	5	
Important Dates (55)	1	2	3	4	5	
In A Minute (58)	1	2	3	4	5	

It's an Emergency! (62)	1	2	3	4	5
Just for the Fun of It (65)	1	2	3	4	5
Keeping In Touch (69)	1	2	3	4	5
Let's plan a trip (73)	1	2	3	4	5
Local Jobs (77)	1	2	3	4	5
Looking Out For My Body (80)	1	2	3	4	5
Multicultural Americans (84)	1	2	3	4	5
Multiplication Machine (88)	1	2	3	4	5
My Behavior Plan (92)	1	2	3	4	5
My Personal Information Bank (95)	1	2	3	4	5
On the Phone (98)	1	2	3	4	5
Organization and Study Aids (102)	1	2	3	4	5
Paycheck Deductions (107)	1	2	3	4	5
Paying Bills (109)	1	2	3	4	5
Quick Henry, Outline That Idea! (112)	1	2	3	4	5
SHOW YOUR COLORS (115)	1	2	3	4	5

So What's News? (118)	1	2	3	4	5
Speech Synthesizer (121)	1	2	3	4	5
Speed Trap (124)	1	2	3	4	5
Temperature Probe (127)	1	2	3	4	5
That's Where My Money Goes! (130)	1	2	3	4	5
The Greeting Card Company (133)	1	2	3	4	5
Uniquely Me! (136)	1	2	3	4	5
Using Similes To Make Comparisons (140)	1	2	3	4	5
Vacation Time (143)	1	2	3	4	5
What Does a Policeman Do? (147)	1	2	3	4	5
What Does That Mean? (150)	1	2	3	4	5
What Is All That Water? (153)	1	2	3	4	5
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Words Rule! (160)	1	2	3	4	5
Write Your Own Problems (162)	1	2	3	4	5
You Are What You Eat (165)	1	2	3	4	5

Personal Data

III. Please give us a quick picture of you by checking all that apply to you.

In education:

What is your position?

___ Regular education teacher
___ Special education teacher
___ Resource room coordinator
___ Information/materials specialist

___ Other _____
please specify

In your career, which of these types of special learning needs have you worked with?

___ Learning disabilities
___ Mental retardation
___ Traumatic Brain Injury
___ Emotionally disturbed/ Behavior disordered
___ Disadvantaged
___ Slow-to-learn

___ Other _____
please specify

What grades do you teach?

___ K-3
___ 4-6
___ 7-9
___ 10-12

___ Other _____
please specify

What is your area of teaching responsibility?

___ Mathematics
___ Language arts
___ Social studies
___ Physical sciences

___ Other _____
please specify

How many years have you been teaching?

___

As a computer user:

What is your level of familiarity with computers?

___ None
___ Very basic
___ Comfortable
___ Intimate

Have you ever worked, in the classroom, with

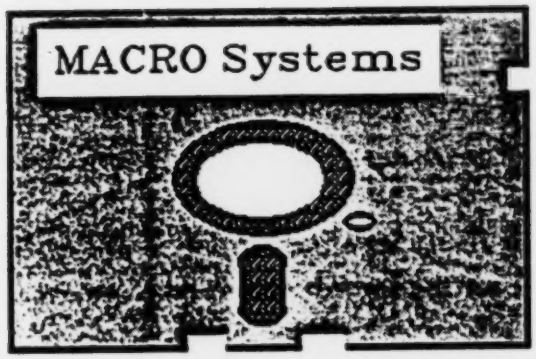
___ computers
___ productivity tool software
___ educational courseware

If you want to be kept informed of the publication of the final guide, please include your name on this form (or send it to us under separate cover). Again, thank you for your time, your ideas, and your efforts.

The software design brochure was intended to be a small product that could be disseminated widely and very inexpensively. Since it is to the benefit of the special education community at large for all educational software publishers to read this material, we have sought the help of the Software Publishers Association. They have tentatively agreed to distribute copies in connection with Computer Learning Month, which is in October.

In addition, 65 copies of the brochure were sent to Kathy Hurley, Vice President, Education Division, Mindscope, Inc. She is conducting a meeting at the National Educational Computing Conference in Dallas, Texas on June 21, 1988 that will be attended by 60 educational software publishers, and she has agreed to discuss and distribute the brochure.

III. TEACHER PRODUCT



GUIDE FOR THE USE OF GENERAL SOFTWARE WITH STUDENTS WHO HAVE SPECIAL LEARNING NEEDS

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Acknowledgements

A small group of exceptional and wonderful people have labored long and hard to create this book. They are all true believers in the use of technological tools for improving instruction of special needs students. They share the conviction that good teachers, given good direction and information, can really make a difference.

The project was initially directed by Dr. Carl Cameron, who brought to the assignment his deeply held belief in the power and potential of microcomputers in special education. His contribution to this effort was considerable and appreciated. When he left to return to academia, Dr. Laura Colker took over to complete the task with authority and style. This final version of the many drafts is the result of her painstaking attention to detail and her impressive knowledge of instructional materials development. Ms. Kate Wholey served as assistant to both, skillfully managing myriad tasks with good humor and always demonstrating her organizational skills and the willingness to go the extra mile.

Three creative, committed and knowledgeable educators developed lessons that would be useful and easy to follow. Alice Lucas is a sixth grade social studies teacher in San Francisco working with mainstreamed learning handicapped students. Much of her work involves using microcomputers with word processing programs, modifying general education software for use in her class. J. Craig Dickinson is a software consultant who spent many years as a classroom teacher in Orono, Maine. His special skill is in designing innovative strategies for the integration of microcomputer technology in the classroom. Julie Bader is a Teacher Specialist in the Montgomery County, Maryland Public Schools, where she concentrates her efforts on the use of technology in special education. Her responsibilities include training teachers to use technology, developing curricula for special education students and reviewing software.

Macro was fortunate to have the assistance of an advisory group that included experts in special education, regular education, instructional materials development, technology application, software publishing and software design. This group served as a mechanism for ensuring that the book is responsive to the needs of educators and students, and realistic in terms of its suggestions for the use of the software in the classroom.

Judy Wilson, Ed.D. is Project Director for the Microcomputer Information Coordination Center, a State-wide microcomputer consortium in Kansas. She brought to the team many years of work in special education focused on the modification and adaptation of instructional media, materials and technology.

Joan Thormann, Ph.D. is a consultant in computer technology with the Massachusetts Department of Education, Division of Special Education. Her special area of expertise is in instructional applications of microcomputers in special education.

June E. Foster is Director of the Special Needs Center of Technical Education Research Center. She contributed her knowledge of instructional software design and her experience with projects that articulate software use with classroom instruction.

Lynda L. West, Ph.D. is an Associate Professor of Practical Arts and Vocational-Technical Education at the University of Missouri. Her background in career education for handicapped persons added a special dimension to the team.

William Downall is a software design consultant who is very sensitive to the needs of teachers, having been a seventh grade teacher for five years. His mastery of the capabilities of technology brought to the group a unique perspective.

Kathleen M. Hurley is Vice President, Educational Division, Mindscape, Inc. Her professional background is in special education and her early career included teaching special education classes. Her singular knowledge of software publishing coupled with the sensitivity to the needs of special education teachers proved to be a major contribution to the group's efforts.

This project was completed under contract to the U.S. Department of Education, Office of Special Education Programs. Ms. Jane Hauser served as Project Officer, representing the Division of Innovation and Development. Her support and encouragement were appreciated by everyone. Her wit and good humor on this project as well as others make her a very special person.

Macro Systems, Inc. is fortunate to have had the benefit of superior professionals contributing their best to this project. It is our fervent hope that every teacher who uses this book will use it as a springboard to develop more lessons, get more comfortable with technology tools and enjoy the experience.

Louise S. Appell, Ph.D.
Vice President
Macro Systems, Inc.

INTRODUCTION

This Guide is for teachers of students with special learning needs who have been looking for ways to incorporate computer software into their classrooms.

The past several years have witnessed a technological boom, as microcomputers have become commonplace in education. According to recent figures, 95.6 percent of public schools -- representing 98% of all school districts -- have access to micros. Clearly, the microcomputer has become an integral fixture in the curriculum of our schools.

Teachers have found that general use software such as word processors, database managers, and printing programs can greatly enhance the learning process. With these tools, students can learn to organize their thoughts, develop new skills, and explore creative approaches to problem-solving. For many children, being able to learn at their own pace and in their own way makes the difference between being frustrated over school work and approaching it with enthusiasm.

Teachers of children with special learning needs have been in the vanguard of microcomputer use in education. From the beginning, teachers of the handicapped have been among the first to recognize the technology's potential.

What is it about the microcomputer that makes it especially appropriate for use with students with special learning needs? First of all, micros are motivating. Secondly, they are nonjudgmental. A micro does not get exasperated by having to repeat instructions nor annoyed if the first draft of a composition needs numerous corrections. The precise educational needs of the learning-impaired student are those that are best handled by this technology.

To illustrate, we know that students with learning disabilities need:

- adapted reading or vocabulary levels.
- tasks that minimize frustration, especially with new concepts.
- activities that help them attend to the task.
- tasks that minimize distraction.

- help getting organized and keeping track of assignments.
- help completing assignments.
- activities that provide review or reminders about previous material.
- activities that allow them to correct impulsive answers.
- help in revising and proofreading written work.
- flexible time limits for finishing work.
- mechanisms for producing neat work.

Students with mental retardation may additionally need:

- help applying information to new situations.
- routines and directions repeated often.
- help to develop problem-solving skills.
- language development activities.
- tasks broken into small steps.
- emphasis on independent living skills.

Microcomputers help teachers address these very needs. By using tool software, teachers have found these benefits to ensue:

- reading and vocabulary levels can be controlled.
- the teacher can construct concrete, relevant examples.
- age-appropriate materials can be developed.
- students can work at their own pace within the same activity.
- teachers can encourage cooperative learning activities and peer helping.

- students can produce "clean copies" of written work.
- teachers can use the same format many times, providing repetition.
- content can be designed to emphasize independent living skills.
- content can be designed to provide a tie-in to real-life situations, while also addressing a specific content area.

The unique capabilities of the microcomputer for error recognition, branching, repetition, and patience have shown it to be an ideal vehicle for individualizing education in the spirit mandated by Public Law 94-142.

Yet, while there has been a tradition of support for computer-based learning, the reality of the situation is such that teachers of the handicapped have been thwarted in their ability to bring the computer into the classroom by the dearth of appropriate software. While an abundance of useful tool software exists, this software has been developed without the special needs child in mind.

This is where this Guidebook comes in. This volume has been specially designed to help teachers make use of the rich pool of general use software that already exists. The lesson plans which form the core of this book present a blueprint for you to use in adapting general use software to fit the unique needs of the students in your classroom. With this Guide, it is our hope that all students -- regardless of their learning styles and capabilities -- can now have access to the unique benefits of microcomputer-based learning.

USING THIS GUIDE

Underlying this Guide is the assumption that general use -- or tool -- software is a flexible, relevant use of the computer for students with special learning needs. Our primary focus is toward students with mild to moderate learning disabilities, emotional impairments or mental retardation. These students represent a broad range of abilities as well as disabilities. They include students in both regular and special education classes. These youngsters may be profoundly handicapped or they may be gifted.

Their handicaps may express themselves rarely or they may be debilitatingly constant. These students are a diverse group who, like their nonhandicapped peers, want to learn and achieve. Tool software can help them do both.

MAKING USE OF TOOL SOFTWARE

The instructional activities in this book require that teachers be familiar with tool software. However, this does not imply that this Guidebook is intended only for the teacher who is computer savvy. On the contrary, the novice teacher can just as successfully use this book as the teacher who is computer-wise. All that is required is some advance preparation in familiarizing one's self with the software referenced. Choose something to do -- your month's bills or class budget; a letter to your grandmother or a plan of your personal or professional growth for the next five years. Then, jump in and explore the basics of the package.

To assist teachers in the familiarization process, and to ensure commonality of understanding, we offer the following definitions:

Tool Software enables us to handle and organize information. Tool software has been embraced by the educational community because it shifts the focus of a student's activities away from the drudgery of rewriting, locating, sorting and calculating to the excitement of manipulating data and producing neat, readable work. The most commonly used tool software programs are word processing, database management, spreadsheet, information organizers, and telecommunication programs.

A word processing program is probably the most common tool program. It is used for writing, revising, formatting and saving written documents such as letters, compositions, newsletters and reports. Large pieces of text can be moved, copied or deleted. The primary benefit of word processors is the time saved from re-typing. Specialized word processing programs are increasingly available. Desktop publishing programs allow the user to construct multi-column layouts and graphics and photographs to create professional-looking newsletters, brochures, overhead transparencies and advertisements. School versions of these programs are available, too.

A database is a collection of information items that are related in some way. A database management program is a tool program used to enter, edit, store, and manipulate information. Once the information is entered, it can be rearranged and organized according to the wishes of the user. Common school-related databases include address lists, bibliographies, and subject-specific information such as those found in encyclopedias. Each database record contains categories of information about a single entry. The user can choose or select records to print and construct different printing formats. For example, you yourself may have a student information file that contains information about all of your students. You can use the PERIOD category to select the records of your first period students or MIDTERM for test scores when you're ready to make up report cards.

A spreadsheet program is used to perform numerical calculations. The user enters information into a grid of horizontal rows and vertical columns (the point of intersection is called a cell). Numbers, formulas and words are valid cell data. Common uses of a spreadsheet program are constructing a budget or compiling student grades. The user enters the information needed and the program performs the calculations, saving time. Again, the teacher is freed to pose meaningful and exciting "What if ...?" questions. Spreadsheet programs with ready-to-use templates that contain formulas and formats are available for tasks as complicated as taxes and financing a mortgage and as simple as grading systems.

Integrated software programs contain more than one tool program that can be used together, e.g., word processor, database and spreadsheet programs. Information and data from one part of the program can be moved or merged with information in another part of the program. For example, information from a database, perhaps an address, may be moved into salutation format in a word processed letter that incorporates student grade information from a spreadsheet.

Printing programs allow users to be guided by a program structured for a very specific purpose. In fact, these programs usually guide the user with on-screen directions for entering information. Some printing programs are used to personalize products for the user. Graphics used are primarily picture, as opposed to text, displays of information. In this Guide, printing programs include programs for which the primary purpose is to print a final product. These include programs for printing awards, certificates, calendars, signs, banners, greeting cards, comic strips, and puzzles.

Information organizers are shell programs that provide a structure for organizing particular types of information and then printing that information in different forms. For example, numbers can be added to a graphic program which enables the information to be converted into a pie chart. These programs often combine simple word processing capabilities with graphics programming. Information organizers include graphing programs, survey compilers and notecards, and outline and timeline makers.

A telecommunications program allows people to use telephone lines to send messages and receive information between computers in different locations. It uses a device called a modem (MODulator-DEModulator) to change information to computer signals, send it through to telephone lines and then restore it on the other end. Many schools use this combination of hardware and software to "access" information from electronic bulletin board and national database services. One popular application of telecommunications is electronic mail (E-mail). E-mail users identify themselves through passwords so that only the intended reader receives the communication. E-mail, bulletin boards, and computer conferencing systems are being used across a classroom or around the world.

FORMAT OF THE LESSONS

The 30-odd lessons included in this Guide are designed to teach and reinforce skills that you are already stressing in your classroom curriculum. They include academic skills such as math and science as well as interpersonal skills that enhance the student's ability to communicate. Many of the lessons take a basic approach to the curriculum, focusing on the functional skills that will help students in their daily living and in preparing for a career.

For ease-of-use, all lessons have been formatted into these sections:

DESCRIPTION: Offers an overview of the activity, including products generated.

USING A ... (WORD PROCESSOR, DATABASE, SPREADSHEET, etc.): Lists the specific type(s) of tool software used in the lesson. For all lessons, two or more experiences with tool software are offered.

OBJECTIVE(S): Defines the instructional goal(s) set for students in this lesson.

STUDENT PREREQUISITE SKILL(S): Specifies the background understanding(s) and skill(s) students need to bring with them to the lesson.

SETTING THE STAGE: Explains the necessary preparation teachers should complete before introducing the lesson to students. Included here are such suggestions as making arrangements for visitors to the class, constructing outlines (i.e., templates), for use with the tool program, and assembling materials that you will need ahead of time.

INSTRUCTION: A step-by-step plan for conducting the lessons. The amount of teacher direction varies, of course, with the ages of the students and the nature of the lesson.

FOLLOW-UP ACTIVITY (IES): Outlines ideas that teachers can employ to reinforce or extend the learnings introduced in the lesson.

SELECTING A LESSON

In addition to these instructional sections, each lesson has information for teachers to use in deciding which lessons are appropriate for use with their students. Three types of SELECTION CRITERIA are provided: level, content and type of software.

Level - An estimate of the appropriate grade level for which this lesson has been designed. These levels should be regarded only as guidelines in deciding whether or not an activity is appropriate, since gifted students in the elementary level could certainly enjoy activities designated for high school students, while many high school students could, at appropriate times, benefit from the lower level activities. Also, these designations may not exactly coincide with the type of grade organization used by your school. Therefore, use the level reference as a guide -- not as a standard. The levels included in this Guidebook are:

Code	Levels	Grades included in Level
E	Elementary	K-6
M	Middle	Grades 6-9
H	High School	Grades 9-12
ML	Multi-Level	Appropriate across all three levels

Content - As noted, lessons cover a range of topics. For ease-of-use, we have classified the lessons according to their primary instructional focus. While some lessons may cross these boundaries, the codes presented here should guide teachers in making a determination of the lesson's content. Designators used in this volume include:

Code	Content area	Specific subjects included
A	Academic	Reading, language arts, social studies, science and math
DL	Daily Living	Independent living and functional activities
PS	Personal/Social	Interpersonal and self-management activities
C	Career	Career exploration activities

Type of software - Each lesson focuses on one or more types of tool software. These tool software programs are used in this Guide:

Code	Type of Software	Examples available in schools
WP	Word Processor	Bank Street Writer, Scholastic; Magic Slate, Sunburst
DB	Database manager	Friendly Filer, Grolier; pfs:File
SS	Spreadsheet	EduCalc, Grolier
PR	Printing tool, including sign, banner, poster-makers	Print Shop, Broderbund
	Certificate or award makers	Certificate Maker and Principal's Assistant, Mindscape
	Card makers	Greeting Card Maker, Activision, Inc.
	Calendar tools	Print Your Own Calendar, Hartley; My Very Own Calendar, Mindscape
	Crossword puzzle tools	Crossword Magic, Mindscape
IO	Information organizers, including	
	Survey compilers	Surveys Unlimited, Mindscape; Survey Taker, Scholastic
	Timeline makers	Time Liner, Tom Snyder Productions
	Outline makers	Homeworker
	Graphing programs	pfs:Graph and Easy Graph, Grolier
	Notecard makers	Notetaker, Grolier

The codes for activity level, content area, and types of tool software featured in each lesson are presented in the vertical boxes on the right-hand side of the first page of each lesson. Teachers are urged to consult these criteria in making curricular choices.

SELECTING THE RIGHT LESSONS

In deciding which lessons to select for use in your classroom, the selection criteria noted above will be your primary tool of reference. However, as a teacher of students with special learning needs, you are well aware of the need for finding lessons that meet your studetns' particular and idiosyncratic learning needs. For example, you may have a student in your class who needs help in organizing and tracking tasks. Is there a particular lesson or lessons which would best help this student?

The answer is a resounding "yes." Lessons that rely on information organizing software, such as notecard makers or timeline makers would be most helpful to students in need of practice in this skill area. Therefore, in deciding which lessons to use, we urge you, as a first step, to decide which type of tool software would be best to use with each individual student. Does the student need a printing program to help illustrate ideas concretely? Does he or she need practice with a word processor so that clean copy of work is produced? To assist you in making these decisions, we offer the following reference tool, so that you can easily see which type of tool software meets which particular learner needs. An "x" indicates that the need in question is addressed by the software.

Learner Needs	WP	DB	SS	PR	IO
Controlled reading and vocabulary	x	x	x		
Concrete, relevant examples of concepts	x	x	x		
Visual illustrations for students who need concrete illustrations				x	x
Emphasis on daily living concepts	x	x	x		
Emphasis on real-life situations to aid generalization	x	x	x	x	
Same structure for work with flexible time limits	x	x	x	x	x
Individual expectations for students	x	x	x	x	x
Cooperative learning and peer helping experiences	x	x	x	x	x
Opportunity to produce clean copies of work	x	x	x	x	x
Consistent repetition of format and procedures	x	x	x		x
Individualized templates to address student needs	x	x	x		
Minimization of visual motor problems for some students	x	x	x	x	x

Once you have decided which type of software you wish to use with your students, the next task is to match content and level with the particular type of software utilized by a lesson. To assist you in making these determinations, we have developed a summary matrix that displays this information at a glance. Lessons are listed according to their content area. The level and software used are then noted for each lesson.

Feel free to use this matrix to help you (1) select individual lessons for students that will meet particular educational needs; and (2) plan a balanced program of instruction for all of the students in your classroom.

* * *

The lessons that follow and the reference appendices at the back of this volume should provide you with a strong foundation for bringing tool software into your classroom. We urge you, however, to regard these activities only as a beginning point. Adapt and expand them at will. As with all facets of teaching, it is understood that your own creative ventures with tool software will be the best educational means you have of providing students with special learning needs the individualized opportunities they need and deserve.

Software Cross-Reference Chart

CONTENT/ACTIVITY TITLE	LEVEL E	M	H	SOFTWARE WP	DB	SS	PR	IO	PAGE #
ACADEMIC: READING									
Favorite Books (Lesson 1)	x	x		x	x				1
ACADEMIC: LANGUAGE ARTS									
A Drum Role, Please (Lesson 2)		x		x	x			t	4
A Simile is Like (Lesson 3)	x	x		x					10
ACADEMIC: MATH									
In a Minute (Lesson 4)	x	x	x			x		g	13
Speed Walking (Lesson 5)		x	x		x	x			18
ACADEMIC: SCIENCE									
Drug Education (Lesson 6)		x	x		x	x	a		20
Take Heart (Lesson 7)		x	x			x		g	24
Heat Reaction (Lesson 8)		x	x			x		g	30
You Are What You Eat (Lesson 9)		x	x		x	x	p		33
ACADEMIC: SOCIAL STUDIES									
In the Clouds, In the Deep (Lesson 10)		x			x	x		g	37
Multicultural Americans (Lesson 11)	x	x			x	x		g	41
So, What's the News? (Lesson 12)		x	x			x		g	44
Water, Water Everywhere (Lesson 13)	x	x			x		d		46
PERSONAL/SOCIAL									
Electronic Mail (Lesson 14)		x	x		x	x			7
On My Best Behavior (Lesson 15)		x				x		g	51
Student, Know Thyself (Lesson 16)		x	x		x			g	56
Survey Says ... (Lesson 17)	x	x					p	g	59
Just for the Fun of It (Lesson 18)		x	x		x	x		s	66
DAILY LIVING									
Let's Go! (Lesson 19)		x	x		x		x	s	15
Germ Busters! (Lesson 20)	x				x			cs	28
Dateline: School (Lesson 21)	x	x			x	x		c	48
A Home of My Own (Lesson 22)			x		x	x			62
It's an Emergency! (Lesson 23)	x	x			x			s	64
Nutrition Knowhow (Lesson 24)		x	x		x	x	x		69
From Gross to Net (Lesson 25)			x			x		g	72
Easy Come, Easy Go (Lesson 26)		x	x			x	x		74
Vacation Time (Lesson 27)		x	x		x	x			77
CAREER									
My Personal Information Bank (Lesson 28)			x			x			53
Greetings! (Lesson 29)		x	x				x	g	79
Career Interests (Lesson 30)		x						s, t	81
Local Jobs (Lesson 31)			x		x	x			84

Printing Programs
a = Award/certificate maker
cs = Comic strip maker
d = Drawing
g = Greeting card maker
p = Puzzle maker
s = Sign/banner maker

Information Organizers:
c = Calendar maker
g = Graphing program
n = Notecard maker
s = Survey compiler
t = Timeline maker

ACTIVITIES

The 30-odd lessons included in this Guide outline a variety of ways computers can be used with students. In most cases, students should be familiar with the software prior to attempting the activities. Some activities are designed to teach students the basics of the software, but the primary purpose of each is the curriculum objectives. Therefore, be sure to review the lessons carefully so that your students have the skills necessary to be successful.

These activities present a variety of teaching approaches. Some lessons focus on using the computer individually or in pairs. Some encourage small group work and others offer suggestions for using tool software with the whole class. The possibilities are endless ... and that is the point we wish to underscore. This Guidebook should used as a springboard for learning. Consider it the beginning of your adventure with using tool software in the classroom.

Favorite Books

DESCRIPTION: Students track their independent reading by building a database of books they've read. They write reviews of books to be included in a collection of favorite books kept in a loose-leaf binder for other students to share. Book awards are presented to the students' favorites.

USING A DATABASE

Objective:

- Use a database to track readings.

Student Prerequisite Skills:

- Experience in reading books on one's own.

Setting the Stage:

- Develop a structure for a database record, such as the one shown here:

TITLE: AUTHOR: ILLUSTRATOR: TYPE OF BOOK: SETTING: NUMBER OF PAGES:

Instruction:

- Have students discuss what features they like to know about books -- for example, who wrote it, when it was written, how long it is, etc.
- Introduce the idea of a database record as a means of recordkeeping.
- Review database software with students.
- Show the class the prepared record, and ask for suggestions for fields.
- Have the students enter records for all of the books they've read thus far during the year.
- Instruct students to save their file and continue this activity throughout the school year as they read new books.

Follow-up Activity:

- Have students periodically review their files to see what types of books they have chosen to read. Are they surprised by their reading habits? Do they read books primarily by one particular author? Do they only select stories about horses? Have the students analyze their reading habits in an essay or speech.

USING A WORD PROCESSOR

Objective:

- Use a word processor to develop a book review.

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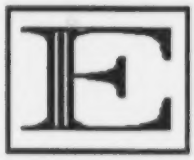
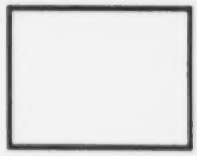


CONTENT

SOFTWARE



Student Prerequisite Skill:

- Ability to formulate opinions.

Setting the Stage:

- Assemble reviews of books popular with the students in your class.
- Locate binder and 3-hole punch for collecting students' completed reviews.
- Create template for word processing file, using the database record format for author, title, etc.

BOOK REVIEW

TITLE:
TYPE OF BOOK:
AUTHOR:
SETTING:
ILLUSTRATOR:
NUMBER OF PAGES:
REVIEWER:
DATE COMPLETED:
REVIEW:
RECOMMENDATION TO FELLOW READERS:

Instruction:

- Read reviews to students or allow students to read them at their own pace.
- Instruct students to complete a book review for each new book they read during the year.
- Alert students to the importance of including descriptions of characters, setting, and plot without telling the whole story. Model writing a review using a familiar book.
- Review word processing software, if necessary. If appropriate, have the class write a group review of a familiar book as a model.
- Use class display to show word processing template to be used by students while writing their reviews. Instruct students how to access format (template) from disk.
- Instruct students to print their reviews. When completed, students can punch holes in the print-outs and include the review in a class binder. Students can then use these reviews to guide them in picking out books in the future.

Follow-up Activity:

- Instruct one or two students to design a title page and cover for the collection of reviews using a printing tool (Print Shop).

USING A DATABASE

Objective:

- Use a database to preview books before selecting one to read.

Student Prerequisite Skills:

- Completion of previous database and word processing lessons.

Setting the Stage:

- Assign a recreational reading activity.
- Have the class database on books available for use.

Instruction:

- Present a reading assignment to the class .
- Ask students to use the book reviews on the computer as a basis for selecting a book to fulfill their assignment.
- Help students by:
  - Discussing possible criteria for arranging fields in the database of books read.
  - Giving examples of type of book, setting, or number of pages.
  - Using class display to show fields in a record.
- Instruct students in use of "select" or "find" commands to limit their search to books of particular interest, for example, science fiction or mysteries.
- Have students manipulate the database to make a book selection.
- Have students report on why they made the selection they did.
- Focus the discussion on what criteria were of importance to students.
- After reading a selection, have the students report back on how helpful the selection process had been. Was the book what they expected it to be? What measures would they suggest to improve the book selection system?

Follow-up Activity:

- Have students update the files to include more information as new reading assignments are given. For example, they may need to know if books in the database are written from a particular point of view to fulfill a specific English assignment.

A Drum Roll, Please

DESCRIPTION: This lesson uses student interest in movies, television, sports and music awards as a focus for building a database about winners. Students research the background of one winner and use a word processor to write a presentation speech. With an information organizer, they are directed to create a timeline showing previous years' winners.

USING A DATABASE

Objectives:

- Gather and organize information.
- Structure a database.
- Arrange data in a database to find similarities.

Student Prerequisite Skills:

- Interest in and awareness of entertainment awards.
- Ability to read charts.

Setting the Stage:

- Gather materials on annual entertainment and sports awards for students to review.
- Invite students to bring in additional information on awards ceremonies from the public library or special interest magazines.
- Allow students time to review and share their information .

Instruction:

- Review database software with students.
- Divide students into interest groups based on their choice of award category (e.g., Oscar winners, Emmy winners, etc.).
- Tell students that in this lesson they will be building a database on awards-winning entertainers or athletes.
- Direct groups to come up with a plan for what they would like to see included in a database of award winners. Do they want to know about Oscar-winning actors' previous jobs or who has been the winning coach of NCAA Division I men's basketball teams? Each group should list the types of "data" they would like to have on file.
- Have students structure a record for their database that would display the information they wish to keep track of. Have the students use "Year" of award as their first field.
- Using the assembled materials, have the students create a database featuring the agreed-upon categories of information.
- Have the students manipulate the database to sort for items of interest. For example, they can look for all of the Oscar-winning actors who began their careers as waiters or see how many Grammy-winning artists also had songs that were #1 on the charts in the year the Grammy award was won.
- Direct students to use the database to answer any questions they may have about these winners.
- Have students print selected records and report their findings to the class.

LEVEL

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Follow-up Activity:

- Have the students use the database to compose a presentation entitled "Five Interesting Facts about the Winner of ... (The 1972 Best Singer of the Year Award/ The Tony Winners of 1985/etc.).

USING A WORD PROCESSOR

Objective:

- Select important facts from the life of a public personality.
- Compose a presentation on the word processor about a public personality.

Student Prerequisite Skills:

- Interest in and awareness of entertainment or sports awards.
- Ability to read material critically.

Setting the Stage:

- Gather materials on entertainment and sports figures.
- Discuss a forthcoming annual awards ceremony.
- Encourage students to bring in newspaper articles about the awards.

Instruction:

- Distribute materials on entertainment or sports figures.
- Review word processing software, if needed.
- Direct students to compose a short background sketch on the word processor about a personality currently competing for an award. Students should be instructed to enrich their stories by personalizing them. While they should keep the information factual, they can pretend to "know" the personality they're writing about. E.g., "I remember when Michael Jackson and I were in school together, he was always singing in the stairwells."

Follow-up Activity:

- Have the students print their finished work.
- Have the students present their stories to the class, as if they were nominating the individuals they've written about. The class can then vote for the winners, based on the strength of the presentations.

USING AN INFORMATION ORGANIZER (Timeline Maker)

Objective:

- Put events in chronological order.
- Develop a timeline depicting accomplishments of an award winner.

Student Prerequisite Skills:

- Interest in and awareness of entertainment and sports awards ceremonies.
- Ability to order events.

Setting the Stage:

- Make information about annual awards available to students.
- If students have completed database lesson, ask them to bring print-outs to class.
- Assemble examples of timelines.

Instruction:

- Using examples of timelines, show students that a timeline can have more than one strand of information on a theme.
- Instruct students to make their own timelines. Then, have students decide what type of information they wish to display on their timeline. For example, do they wish to show the all-time favorite award winners by year, or do they wish to show the winners in all categories of film awards by year? (See examples below.)
- Review timeline software with students.
- Assist students in developing a timeline to display the desired information.
- Have the students print their timelines and share them with the class.

Follow-up Activity:

- Have students search the database for individuals that have been winners in more years than one.
- Have students compare winners across categories, for example directors of films and directors of music videos).

ALL TIME FAVORITE AWARD WINNERS

	1985	1986	1987	1988	1989	1990
MOTION PICTURE AWARDS (OSCARS)						
MUSIC AWARDS (GRAMMIES)						
TV AWARDS (EMMIES)						
THEATRE AWARDS (TONIES)						
HEISMAN TROPHY AWARDS						
SUPERBOWL CHAMPS						

MOTION PICTURE WINNERS

	1985	1986	1987	1988	1989	1990
TITLE						
DIRECTOR						
BEST ACTOR						
BEST SUPPORTING ACTOR						
BEST ACTRESS						
BEST SUPPORTING ACTRESS						

Electronic Mail

DESCRIPTION: Students get to better know their classmates, through writing notes and letters sent via electronic mail.

USING AN ELECTRONIC MAIL SIMULATION *

Objective:

- Learn the procedures involved in accessing and using an electronic mail system.

Student Prerequisite Skill:

- Ability to memorize a secret code.

Setting the Stage:

- Most electronic mail simulations have a "bulk mail" or "form letter" option which allows the writer to send a message to all users, even if they have not yet signed on to the system. Use this option to compose a brief message of three or four sentences welcoming new users to the system.

Instruction:

- Write "Electronic Mail" and "E-Mail" on the chalkboard and tell students that they represent the latest development in the way people communicate. They refer to messages that are written, sent, and received electronically. Tell students that many homes and businesses use E-Mail by hooking up computer to a modem. The modem, used with the proper software, allows one to type messages into their computer and send them to another computer over phone lines. The computer at the other end of the line acts like a post office, delivering messages to and from users.
- Discuss the advantages of E-Mail with the class:
  - Saves time: mail is delivered instantly.
  - Saves effort: one letter can be typed and instantly sent to many individuals.
  - Saves money: no postage charges.
  - Is convenient: one can send or receive mail at any hour of the day.
  - Is compatible: people with Apple computers can send messages to people with Commodores or IBMs.
- Discuss the disadvantages of E-Mail:
  - Equipment needed to begin communicating electronically is expensive.
  - Access to personal computers and modems is not always available.
  - Fees are often charged to use E-Mail services.
  - Only when people sign onto the system do they receive their mail.
  - Some people prefer communicating by hearing the other person's voice or seeing them in person.
- Point out that in a post office, people rent boxes for their mail and receive keys to open the boxes. An E-mail user receives a secret password that opens his or her electronic mailbox.
- Stress the importance of remembering (memorizing) passwords and keeping them secret.

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* The Electronic Mailbag (ExSym), is the specific software used for this activity. With it, tool software such as the word processor and database can be used.

- Help students develop strategies for memorizing passwords. Work with them to think of

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CONTENT

PS

SOFTWARE

WP

DB

- Help students develop strategies for memorizing passwords. Work with them to think of mnemonic devices for remembering their passwords.
- Individually, assist students in signing onto the classroom E-Mail program. Have students read their incoming messages and ask them to respond.

Follow-up Activities:

- Use the program to provide students with their daily assignments. If the E-Mail program has a printer option, students could retrieve their assignments on E-Mail and print them out.
- Leave your computer E-Mail system on all day long. Encourage students to send and receive mail throughout the day.
- Use the bulk mailing option daily to ensure that everyone receives mail and to give everybody practice responding.
- Encourage more spontaneous writing by pairing students (or allowing them to pair themselves), as penpals.

USING A WORD PROCESSOR

Objective:

- Practice communicating in writing by responding to electronic messages.

Student Prerequisite Skill:

- Ability to use E-mail software.

Setting the Stage:

- Prepare three separate files on the word processor, one for each of the following:

  FILE A: Hello. Did you finish your math work from yesterday?
  FILE B: HI. Would you be willing to straighten the classroom bookshelves today?
  FILE C: Jack forgot his lunch. Would you share your sandwich with him?

- Make a chart for classroom display that lists the following E-Mail "tips" for writing messages:

  1. Refer to the subject.
  2. Keep your message short.
  3. Convey your feelings.
  4. Be polite.

Instruction:

- Review E-mail program with class.
- Review word processing software, if necessary.
- Write the word "yes" on the board. Ask students how they would feel if they read this as an E-Mail message. (Probably confused. They might not remember what they had asked the person. (This is a very common shortcoming experienced by beginning E-Mail users.) Good E-Mail writers include the subject in question in their response.
- Devise sample E-Mail questions for students to respond to verbally (for example, "Did you watch television last night?").
- Tell students that since the E-Mail reader can't see their facial expressions or hear the tone of their voices, it is important they convey their feelings through words. Tell students that many people do this through parenthetical remarks such as (Ha Ha) (Wink) (Grrrrrr).
- Have students use the word processor to retrieve files A, B, and C.

- Instruct the students to compose appropriate responses to the statements on these files. Students can either:
  a. Dump each response directly to the printer, or
  b. Change the name of the file and save it on their data disk.
- Display the various responses on a bulletin board or wall.

Follow-up Activity:

- Have students send simulated E-Mail messages to their peers that start with "One thing I like about you is...."

USING A DATABASE

Objective:

- Construct a database that contains information about their classmates.

Student Prerequisite Skill:

- Ability to use E-Mail software.

Setting the Stage:

- Prepare a database template which has the following two fields:

FIRST NAME:	LAST NAME:

Instruction:

- Ask students why knowing how to spell a user's name correctly is vital for E-Mail users. (The computer needs to make an exact match of a user's name. If a letter is left out, the computer will answer that there is no one by that name registered.)
- Have students type in their own names on the database.
- Show students how to alphabetize, save, and print database files.
- Make copies of the complete registry of E-Mail users for everyone.
- Have students send messages and letters directly to the people on the database.

Follow-up Activity:

- Ask students what fields of important information might be added to a classroom database about each student. Possible fields are:
  PHONE:
  ADDRESS:
  HOBBIES:
  FAVORITE FOODS:
- If possible, check with other classrooms and schools (locally, nationwide and even internationally), about the feasibility of actually instituting an E-Mail system for students. E-Mail penpal relationships can be ongoing throughout the year.

A Simile is Like ...

DESCRIPTION: Students use the word processor to complete common similes and to participate in writing a class poem.

USING A WORD PROCESSOR

Objective:

- Use a word processor to write similes.

Student Prerequisite Skill:

- Familiarity with similes.

Setting the Stage:

- Develop a worksheet such as the following:

Instruction:

- Discuss everyday comparisons. Write out some common similes to display to the class; encourage students to offer suggestions as to how and why they originated.
- Tell the class that similes are used to create word pictures -- to make pictures come to the mind of the reader.
- Define similes as comparisons that contain the words "like" or "as".
- List incomplete similes on the overhead and have students complete them and describe the picture each creates. How does the picture change with the ending. Use examples such as

as fast as...	runs like a...
as tall as...	eats like a...
as quiet as...	loud like a...
as dark as...	swims like a...
as red as...	cries like a...

- Pass out the Picture in My Mind worksheet for students to complete.
- Review word processing software, if necessary.
- Have students work at the computer to complete the worksheet.
- When all students have completed the activity, group student answers for each simile together and print a hard copy for the students.
- Have students choose a simile to illustrate.
- Display the similes and illustrations on a bulletin board.

Follow-up Activity:

- Use Brainstorming: Activities for Creative Thinking (Creative Publications) for additional
- ideas for activities using similes.

LEVEL

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SOFTWARE

WP

USING A WORD PROCESSOR

Objective:

- Use the word processor to compose a class poem.

Student Prerequisites Skills:

- Ability to function as a group member.

Setting the Stage:

- Assemble poems that use similes for students to review, such as this one by Rosemary Garland:

As ---- As ----
As swift as a swallow,
As high as a house,
As slow as a snail,
As quiet as a mouse,
As proud as a peacock,
As red as a rose,
As fat as a pumpkin
As pink as my toes.

Instruction:

- Review the use of similes and comparisons.
- Read a poem to the class that illustrates how similes enrich writing.r
- Have students brainstorm subjects that might be used for writing an illustrated group poem, e.g. nature, the beach, the seasons, the Zoo, animals, etc.
- Review word processing software, if necessary.
- Work as a group at the computer to write a poem. Make use of the delete, move, and copy functions in constructing the poem.
- Print copies of the poem for each student.

Follow-up Activity:

- Have students use a graphics program to illustrated the poem.
- Encourage students to try writing poems on their own.

Picture in Your Mind–

Name_____

Class_____

Date _____

You can help people picture something in their minds by comparing it to something else. For example, what do you think when you read:

Bill swims like a fish.

You probably think that Bill is a good swimmer. A simile is a comparison term that uses the words "as" or "like."

DIRECTIONS:
You can use similes to help people create a picture in their minds.
Complete the following comparisons and then share your answers with your classmates.

The flower smells as sweet as ( ).

The bird flew like a ( ).

The light was shining like ( ).

Firecrackers were exploding like ( ).

The game was as exciting as ( ).

The trees were as ( ) as ( ).

The weather was as ( ) as ( ).

Judy ran as ( ) as a ( ).

In a Minute

DESCRIPTION: Students become part of the action in a story problem by counting how many times they perform a given action in a one-minute timespan and calculating their 1-minute rates. Using a spreadsheet, they make projections as to how many times they might perform an action in a half-hour, an hour, and a day if they continue at the same rate. Students then use a graph program to display their projected output.

USING A SPREADSHEET

Objective:

- Use a spreadsheet to project performance over time.

Student Prerequisite Skills:

- An understanding of the concept of time, specifically:
  - 30 minutes in a half-hour
  - 2 half-hours in an hour
  - 24 hours in a day

Setting the Stage:

- Bring a stopwatch to class.
- Make a scoresheet for the students to use in this lesson, similar to this one:

	A	B	C	D	E	F
01		1 min.	1 min.	5 min.	5 min.	1 day
02		= = = =	= = = =	= = = =	= = = =	= = = =
03		(guess)	(actual)	(projected)	(actual)	(projected)
04	bounce a ball			+B4*5		+E4*24
05	sing "Twinkle,					
06	Twinkle Little Star"			+B6*5		+E6*24
07	touch toes			+B7*5		+E7*24
08	recite "Pledge of					
09	Allegiance"					
10	write name on					
11	blackboard			+B11*5		+B11*24

Instruction:

- Explain to students that in this lesson, they will see how many times they can do a given activity in a minute. Once they know this, they will use a spreadsheet to find out how many times they could do this activity over a longer period of time – such as a half hour, an hour, or a day.
- Distribute copies of the spreadsheet to students.
- Ask students to think of what activities they'd like to do for this lesson. Let them know they are free to use one of the suggested activities shown in the spreadsheet, or to make up one of their own within reason.
- Using a stopwatch, clock each student individually for one minute, performing the activity.

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- Help the students count the number of times they performed their chosen activity during the minute.
- Review the spreadsheet software with the students, showing them how the calculations are done.
- Have each student enter his or her performance record onto the spreadsheet. Instruct the students to print out a copy of their completed score sheets.
- Lead the students in a discussion of their scoresheets. Where are the projections in line with what they thought they would be? Have the students decide how accurate they think these projections are. Remind the class that the spreadsheet program assumes that the students continue their activites at their one-minute rates. Is this realistic? Does fatigue play a role? How could they accommodate for fatigue on the spreadsheet?

Follow-up Activities:

- Have students perform additional activities, using the procedures outlined above. Encourage students to choose activities that not just physical in nature.
- For additional work on time spans, have students make their own timelines using Time Liner (Tom Snyder Productions).

USING AN INFORMATION ORGANIZER (Graph maker)

Objective:

- Using the data acquired in the spreadsheet lesson, generate a graph of student activity.

Student Prerequisite Skills:

- Completion of previous spreadsheet activity.
- Familiarity with graphs.

Setting the Stage:

- Provide students with copies of their scoresheets from the previous activity, listing the number of repetitions they completed.
- Assemble sample pictographs.

Instruction:

- Review the components of a pictograph with the class. Emphasize that a graph always needs a title and that the graphic chosen for a pictograph must be related to the subject.
- Lead the class step-by-step through the graphing program. Come to a consensus about labels for axes, the graph name, and appropriate symbols for the data.
- Instruct each student to enter his or her individual data to create and print a graph of their "One Minute Accomplishments."
- Lead a class discussion on the graphs. Do they see things from the graphs that weren't clear to them when they looked at the figures on a spreadsheet? What purpose do pictographs serve?

Follow-up Activity:

- Have students do two and three minute tests of the same activity. Use the spreadsheet to find the average repetitions per minute using the longer test period. Make new projections based on longer tests and make comparison graphs between the two tests.

Let's Go!

DESCRIPTION: Students survey their class to find preferred sites for a field trip or camping trip. They develop a database of class members names, addresses, zip codes, phone numbers, and parent emergency numbers. They plan a menu, make a shopping list and design a spreadsheet of total food costs and individual student costs.

USING AN INFORMATION ORGANIZER (Survey maker)

Objective:

- Design a survey to collect students choices for a planned field trip.

Student Prerequisite Skill:

- Familiarity with surveys.

Setting the Stage:

- Arrange for administrative approval for a one-day field trip (or an overnight camping trip), with the class. Preselect feasible sites.
- Assemble selected interest surveys.

Instruction:

- Inform students of the upcoming planned fieldtrip. Tell them that they are to have a say in the class's plans.
- Share with the students the pre-selected site alternatives.
- Let students know that they can (1) choose from these alternatives the site they'd like to visit; (2) designate the menu for meals to be eaten on the trip; and (3) specify their choice of activities.
- Tell students that in order to be fair, the class will undertake a survey to collect everyone's opinions and choices.
- Brainstorm some choices for food and activities that could be used on the survey. Record the students' responses.
- Divide the class into three groups. Instruct one group to develop questions for the survey that could record the studetns choice of field trip sites. The second group should develop questions for collecting choices on food. The third group should develop questions related to activities. Remind the groups that they are to use the class "approved" choices.
- Have each group report to the class on their questions. As a group, refine the questions for use on a survey.
- Review survey software with the class.
- Have each group select a designatived representative to type in their questions.
- Print a copy of the finished survey for each member of the class.
- Have everyone in the class complete the survey.
- Share the results with the class.
- Plan the field trip to conform to the class' consensus.
- Enjoy the trip.

Follow-up Activity:

- Have students use a graph program to display the results of each question.

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USING A WORD PROCESSOR

Objective:

- Use the word processor to make a shopping list for an upcoming fieldtrip.

Student Prerequisite Skills:

- Completion of previous activity.

Setting the Stage:

- Assemble cook books for reference.

Instruction:

- If more than one meal is to be served during the fieldtrip, divide students into groups, one for each meal. If only one meal will be served, have the class work as a group.
- Tell students to use the survey of food choices as a starting point for the meal they will be planning.
- Direct the students to develop a shopping list for the meal they are concerned with. Make sure that students realize that not all items can be brought "as is." For example, tuna salad requires tuna fish, mayonaisse, and perhaps celery or pickle relish. Have students consult the cookbooks for a list of needed ingredients.
- Have the students report back with their lists. Are any ingredients missing? If they're serving hot dogs, have they included buns, mustard and ketchup on their lists? Are needed utensils and paper products included?
- Review word processor software, if necessary.
- Have a student volunteer from each group use the word processor to print out a list of their group's grocery list.

Follow-up Activity:

- Count the number of students in the class to determine what quantities of each item will be needed. Help students estimate the needed quantities for items that don't come in units, such as mustard or relish.

USING A SPREADSHEET

Objective:

- Use a spreadsheet to estimate costs of menu items.

Student Prerequisite Skills:

- Completion of previous activity.

Setting the Stage:

- Type in and save a spreadsheet template like the one on the next page, using for foods those suggested by students.
- Select a group of students to make a preliminary trip to a market to check prices and servings per product. Enter this information into the template.

Instruction:

- Instruct students on use of spreadsheet.
- Tell students that they need to use the spreadsheet to calculate the costs of the food for their outing. If a given item is too expensive for their budget, they may have to consider changing the menu.

- Have students use the developed template. Tell them they must total column F (total cost) after entering all grocery items.
- Print out a copy of the completed spreadsheet for the class to discuss. Does it appear that the shopping list meets the budget allotted for the trip?

Follow-up Activity:

- If the budget is not large enough, consider holding a class fundraiser. Using a printing package, have students design, print, and distribute flyers promoting the fundraiser.

A	B	C	D	E	F	G
01						
02	FOOD COSTS					
03	========					
04 No.	Product	Cost	Serving	Units	Total	Cost per
05 Students	Name	per Unit	per Pkg.	Needed	Cost	Student
06	==========	==========	==========	==========	==========	==========
07 16	Burgers: Meat	1.99	4	+A7/D7	+E7*C7	+E7/A7
08 16	Burgers: Rolls	.89	8	+A8/D8	+E8*C8	+E8/A8
09 13	Dogs: Meat	1.29	8	+A9/D9	+E9*C9	+E9/A9
10 12	Drink: Lemonade	1.77	8	+A10/D10	+E10*C10	+E7/A7

Speed Walking

DESCRIPTION: Students use stop watches to calculate how fast fellow students and teachers travel down a school hallway. They help devise a database to record and organize the information. Then, they use a spreadsheet to translate the speeds they observed into miles per hour.

USING A DATABASE

Objective:

- Use a database to organize information collected on running a course.

Student Prerequisite Skills:

- Ability to use a stopwatch.
- Ability to observe and record data.

Setting the Stage:

- Assemble clock watches for students to use.
- Obtain student and faculty volunteers for this activity.
- Obtain permission for using school hallway.

Instruction:

- Explain the activity to students. Tell them they will be collecting information about how fast different people travel in the school hallways.
- Ask probing questions such as "Do you think students will travel faster than teachers?" or "Are there special times during the day when students might travel faster than other times?".
- Brainstorm with the class for suggestions of categories of information that they might want to collect about the walkers they observe. Some possibilities are:
  - NUMBER OF SECONDS TO TRAVEL THE COURSE:
  - GRADE OR POSITION:
  - TIME OF OBSERVATION:
  - WALKING ALONE OR WITH A GROUP:

Activity:

- Have the class compose a template based on the information they want to collect.
- Review database software with the students, if necessary.
- Ask for student volunteers to type in the master template for the database.
- Assign students to spend ten minutes in a preselected hallway. Students can pick any time of the day when they are free to do the observation. Instruct students to observe at least three walkers. Using the class stopwatch, they should clock the walkers and complete the information needed for the database.

Follow-up Activity:

- Have students use EasyGraph II (Grolier) or MECC Graph (MECC) to depict the data graphically. What do graphic displays of data tell the students about who goes fastest in the hall?

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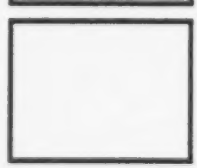

USING A SPREADSHEET

Objective:

- Use a spreadsheet to convert observations on how fast teachers and students walk down a hall into speed measurements.

Student Prerequisite Skills:

- Completion of database activity.
- Familiarity with measurement units of yards, miles, and miles per hour.

Setting the Stage:

- Prepare a spreadsheet template for student use, such as the following. Note that the ttemplate is designed for a 30 yard course. The first number in the formula in cell E3 should be adjusted to match the distance of the hallway used in the database activity.

	A	B	C	D	E
01	Walker	Position	Speed/ 30 YD	Speed/ MPH	
02					
03					
				+ (30/C3)*60*60*(1/1760)	

- Assemble yardstick or a tape measure.
- Have each student print out their database activity.

Instruction:

- Review the concept of "a yard" with students. Ask them to name classroom items that are about 1 yard long, then 2 yards.
- Provide students with a number of classroom measurement activities using a yardstick (for example, measuring the height of the door, the length of the blackboard, etc.).
- Review the concept of miles per hour. Emphasize that this unit of speed is used to measure how far people would travel if they walked at this rate for one hour.
- Take the group to the hallway used for the database activity and have the students measure the hallway exactly.
- Review the spreadsheet software with the class.
- Explain how the calculations they made with the stopwatch can be converted into Miles Per Hour speed designations on the computer.
- As a group, adjust the template to reflect the actual measurement of the hallway.
- Have the students use their database entries to complete the spreadsheet exercise.
- Lead the students in a discussion of the results. Were they surprised by the speeds?

Follow-up Activity:

- Have the students calculate the average rate of speed for:
  - all the people observed in morning v. afternoon hours
  - teachers v. students
  - lowest grade of the school v. highest grade of the school

  Is theremuch variance between the different groups?

Drug Education

DESCRIPTION: Students increase their knowledge of various drugs by learning to read data from tables, displayed on a spreadsheet. Students use printing tools to graphically illustrate how peer pressure affects their feelings about drugs.

USING A DATABASE

Objective:

- Use a database to become familiar with drugs and the possible complications arising from their use.

Student Prerequisite Skills:

- Ability to look up information in encyclopedias, textbooks and dictionaries.

Setting the Stage:

- Have dictionaries, an encyclopedia, and textbooks and brochures dealing with drugs education available.
- Duplicate handouts relating to these drugs:

  Stimulants
  Sedatives
  Caffeine
  Inhalants
  Opiates
  Tranquilizers
  Alcohol
  Anagesics
  Tobacco
  Antidepressants

- Prepare a database template, for example:

> DRUG: Cocaine
> CLASSIFICATION: Stimulant
> NICKNAMES: Coke, snow
> ORIGIN: Cocoa plant
> MEDICAL USE: Local anesthesia
> ADMINISTERED: Inhaled (smoked or through the nose), by injection
> EFFECTS: Feeling of well being, tremors, loss of appetite
> ORIGIN: Cocoa plant
> COMPLICATIONS: Severe nosebleeds, depression and convulsions

Instruction:

- Have students working individually or in small groups research particular drugs, using the assembled handouts and reference materials.
- Review database software with students.
- Show students the sample template. Do they have changes they'd like to make to it? For example, do they want to know if use of the drug is illegal? Why is the drug popular? Are

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there aftereffects once a person stops using the drug? Have the students amend the template to meet their interests.

- Instruct students to enter their findings into the database.
- As records are completed, print copies for class reference.
- Review with students how to arrange records in useful ways. For example, illegal and legal drugs, or manufactured versus natural drugs.
- Hold class discussions, debates, and skits based on the drug information students have learned. For example, have students debate the topic: "Caffeine should only be available by prescription." Or, hold a discussion on whether or not there's such a thing as a "good" drug. Have students perform a skit on peer pressure to sniff glue.

Follow-up Activity:

- Devise database search task cards so that students can retrieve information to answer questions such as, "Name one serious side effect of cocaine."

USING A SPREADSHEET

Objective:

- Use a spreadsheet to read data and answer questions on caffeine.

Student Prerequisite Skills:

- Ability to read product labels.

Setting the Stage:

- Gather containers of products that have caffeine in them.
- Create a spreadsheet template, for instance:

A	B	C	D	E
01				
02 CAFFEINE SCORECARD (IN MILLIGRAMS)				
03 PRODUCT	CAFFEINE	NUMBER		TOTAL
04 Weight control	200	4		+B4*C4
05 Brewed Coffee (5 oz.)	115	1		+B5*C5
06 Nodoz capsule	100	3		+B6*C6
07 Iced Tea(12 oz.)	70	2		+B7*C7
08 Excedrin Tablet	65			
09 Mountain Dew	54			
10 Mellow Yellow	53			
11 Tab	47			
12 Coca-Cola (Diet or Regular)	46			
13 Pepsi	38			
14 Diet Pepsi	36			
15 Milk Chocolate	6			
16 Cocoa	4			
17 Canada Dry Diet Soda	1			
18 ...				
				@SUM(E4..E23)

Instruction:

- As an introductory statement to this lesson, tell students, "I bet everyone has taken a drug within the past 24 hours." Point out that caffeine is a stimulant, also classified as a drug.
- Ask students to name sources of caffeine. Make a list.
- Have the class find product labels for those items. Note their caffeine content.
- Review spreadsheet software with students.
- Have the students review the spreadsheet template. Make changes, if appropriate, to reflect the students' interests.
- Instruct the students to enter the caffeine content of all the products on their lists onto the spreadsheet, using the product labels as a guide.
- Pass out the scorecard worksheet (see next page). Working individually or in groups of two, have the students complete the worksheet, using the spreadsheet.
- Have the class share their answers with the group.
  - ANSWERS TO WORKSHEET: (1) A, (2) B, (3) B, (4) B, (5) A

Follow-up Activity:

- Have students make up their own questions to solve using the spreadsheet.

USING A PRINTING PROGRAM

Objective:

- Use a printing program to communicate thoughts on peer pressure and drug use via art.

Setting the Stage:

- Gather posters, advertisements and brochures that use graphics to convey messages.
- Make a variety of prizes to be awarded to your students for their graphic creations. You may wish to use a software award package such as "Award Maker Plus" (Bordland), "Principal's Assistant" (Mindscape), or "Certificate Maker" (Springboard). Possible awards categories might be:

  - "Most Effective"
  - "Best Design"
  - "Most Original"
  - "Most Colorful"
  - "Funniest"
  - "Scariest"

Instruction:

- Ask students to describe experiences in which they have done something because of pressure from their friends.
- Brainstorm a list of pressures students face as they make decisions about drug use. As appropriate and necessary, define terms such as "peer pressure," "influence," "alternatives," "consequences," and discuss the meanings of related feelings such as frustration, confusion, irritation, anxiety, relief, and satisfaction.
- Display posters, advertisements, or brochures that convey messages graphically.
- Review printing program software with students.
- Discuss with students selections of graphics and words from your shell graphics program which might be appropriate for sending a message about drug use and peer pressure.
- Ask students to develop their own posters that could be used to encourage their peers to become more aware of the way in which peer pressure influences behavior.
- Award prizes or special recognition ribbons such as "Most Original" or "Best Creative Design" to those students whose posters merit singling out. Or, award a prize of some distinction to all participating students.

Follow-up Activity:

- Display the finished posters around the school or arrange to have them hung in public buildings, such as libraries or art museums.
- Have students design posters relating to peer pressure and smoking, use of alcohol, sexual activity, etc.

CAFFEINE SCORECARD WORKSHEET

Name _____

Class _____

Date _____

DIRECTIONS: On the computer spreadsheet, enter the appropriate numbers in column A to determine which list of items contains the most caffeine. Circle the list in each example below that contains the most caffeine.

	LIST A	LIST B
1.	1 coffee & 1 milk chocolate bar	2 Mountain Dews
2.	4 Cokes	1 weight control pill
3.	1 Nodoz capsule 1 Iced Tea	3 Diet Pepsi 1 Excedrin tablet
4.	2 Mello Yellow 3 Coffee 3 Cocoa	3 Pepsi 5 Iced Tea 6 Milk Chocolate Bars
5.	2 Weight Control Pills 2 Nodoz Capsules 1 Excedrin Tablet 25 Milk Chocolate Bars	6 Diet Coke 1 Coffee 50 Canada Dry Diet Soda

Take Heart

DESCRIPTION: The activities in this lesson encourage an awareness of exercise and how it affects the body. Students record pulse rates before and after exercising on a spreadsheet and illustrate the effects of exercise graphically.

USING A SPREADSHEET

Objectives:

- Use a spreadsheet to record pulse rate at various levels of activity.
- Determine how activity affects pulse rate.

Student Prerequisite Skill:

- Ability to perform vigorous physical exercise.

Settting the Stage:

- Construct spreadsheet prior to the activity for students to use to record their pulse rate. The one which follows can be used for this purpose.

A	B	C	D	E
			Beats/	Rate/
01	Condition	Trial	30 seconds	Minute
02				
03	Rest	1		+C3*2
04				
05	Rest	2		+C5*2
06				
07	Exercise	3		+C7*2
08				
09	Cool down	4		+C9*2
10				
11	Rest	5		+C11*2
12				
13	Rest	6		+C13*2

- Duplicate copies of the Pulse Rate Investigation Record for each student (shown on next page).
- Have a stopwatch available for timing.

Instruction:

- Review the components of the circulatory system and identify factors that increase and decrease heart rate.
- Discuss the effects of exercise on the heart.
- Distribute copies of the Pulse Rate Investigation Record. Discuss the form with the class.
- Pair students as lab partners.

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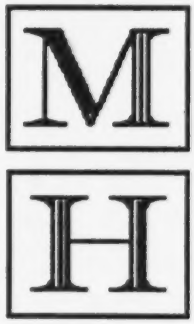

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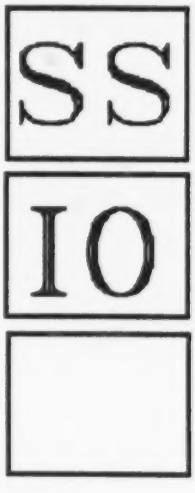


NAME _____

CLASS _____

DATE _____

Pulse Rate Investigation Record

Find your pulse by placing your index and middle finger on either side of your neck. Ask your partner or teacher for help if needed. Follow the teacher's directions and timing to complete this investigation.

Condition	TrialNumber	Beats per 30 Seconds
Rest	1	_____
Rest	2	_____
Run in place for one minute and take pulse right away.	3	_____
Take pulse one minute later.	4	_____
Sit for three minutes. Take pulse.	5	_____
Sit for three more minutes and take pulse.	6	_____

- Show students how to find a pulse point; practice taking partner's pulse for 30 seconds at a time.
- Have students take their partner's resting pulse for 30 seconds and record it on the sheet.
- Have students run in place for one minute, then time the pulse for 30 seconds; record pulse on record sheet.
- After one minute, have students take pulse again and record.
- After sitting for 3 minutes, instruct students to take pulse and record; repeat after another 3 minutes.
- Have the students switch roles and repeat the process for the other partner.
- Review spreadsheet software with the class. Go over the elements of the teacher-made model.
- Using the information from a student volunteer, demonstrate how the spreadsheet works .
- Have each student enter his or her information into the spreadsheet.
- Following the class demonstration, have students print and discuss the similarities and differences in their pulse rates.

Follow-up Activities:

- Construct a spreadsheet to compute the average pulse rate for the class (see the example on the next page).
- Use Cardiovascular Fitness Lab (HRM), with a heart-rate sensor to record pulse rates using a microcomputer software program.

USING AN INFORMATION ORGANIZER (Graph maker)

Objective:

- Construct a graph to illustrate pulse rate information.

Student Prerequisite Skills:

- Completion of the pulse rate activity.

Class Data / Average Pulse Rates

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P
05		Individual Students by Condition Trial													
06															Average for
07			1	2	3	4	5	6	7	8	9	10	11	12	Class
08	Rest1	1	70	64	68	...									@AVG (C8..M8)
09	Rest2	2	72	64	67										@AVG (C9..M9)
10	Exercise	3	115	104	107										@AVG (C10..M10)
11	Rest3	4	102	96	100										@AVG (C11..M11)
12	Rest4	5	96	80	88										@AVG (C12..M12)
13	Rest5	6	90	68	88										@AVG (C13..M13)

Setting the Stage:

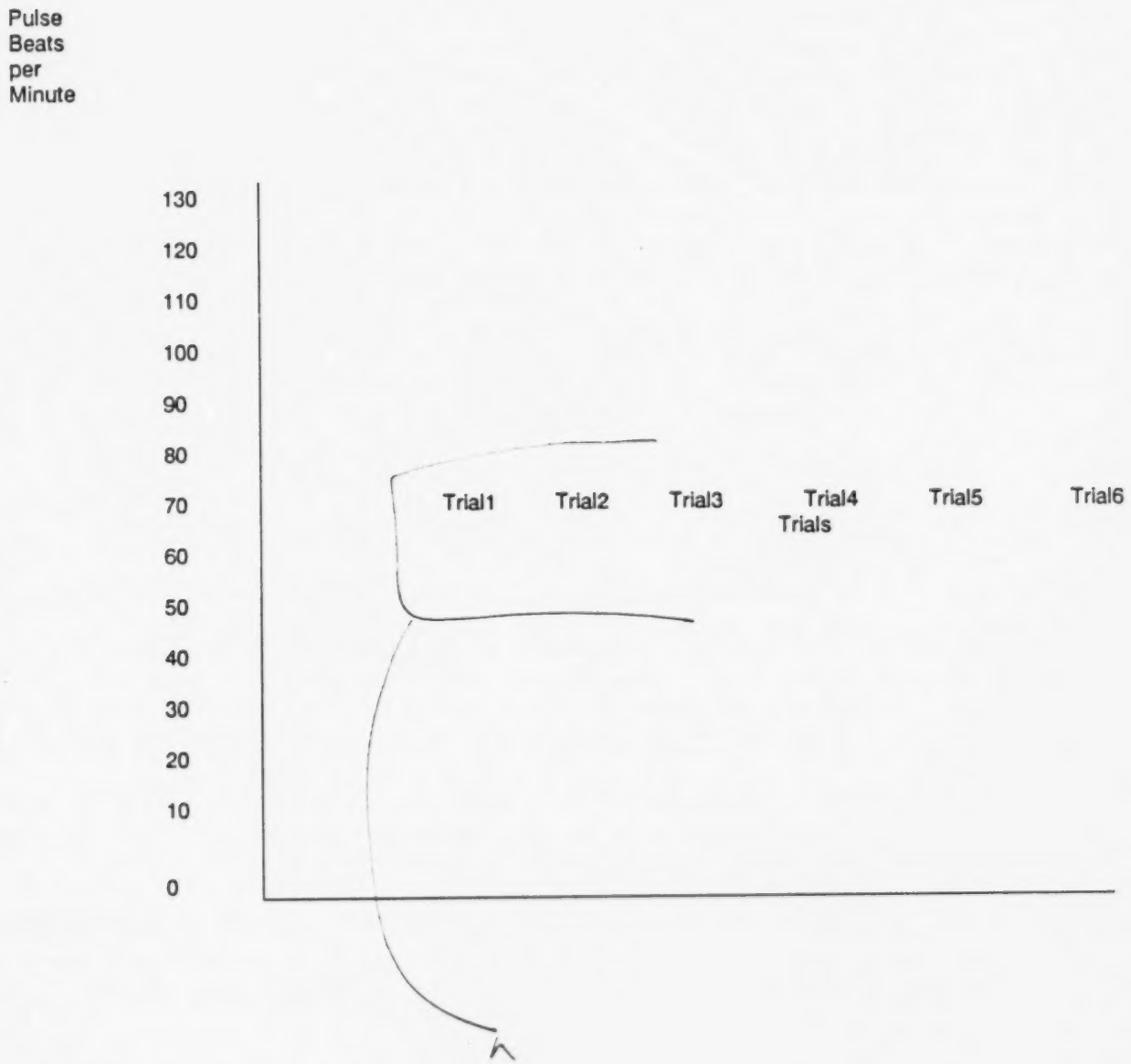
- Gather data on average pulse rates for people of different age groups, in top physical condition, poor condition, national averages, etc.
- Set up graph parameters ahead of time (see the next page for an example).

Instruction:

- Introduce graph maker software, if not familiar to students.
- Review components of a line graph.
- Project a sample graph for displaying pulse rate data on the overhead projector. Review the graph with the class.
- Use one student's data to illustrate use of the graphing tool.
- Print the results.
- Discuss the data on the graph in terms of effect of exercise on heart rate, and the time it takes for recovery.
- Have individual students complete their own graphs using pfs:Graph or MECC Graph and print the results.
- Discuss with the class how their individual graphs differed from one another. What generalizations can they make about exercise and heart rate?

Follow-up Activity:

- Have the class theorize why some people's heart rates return to their resting rates more quickly than other people's. What might this indicate in terms of fitness?


Pulse
Beats
per
Minute
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Trial1
Trial2
Trial3
Trial4
Trial5
Trial6
Trials

67

Germ Busters!

DESCRIPTION: Using a word processor, students identify practices, tools and techniques that can be used to stay healthy. Students then create comic strip sequences concerning health issues.

USING A WORD PROCESSOR

Objective:

- With a word processor, students write about sound health practices and the tools associated with these practices.

Student Prerequisite Skill:

- Knowledge of the relationship between germs and disease.

Setting the Stage:

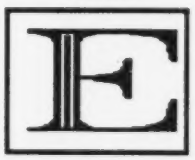
- Collect and make available magazines, brochures, coloring books, etc. that contain pictures of health-related situations.
- Collect books and media materials about health habits and professionals.
- Arrange for visits from health care professionals to speak to the class on health habits.
- Create word processor template using a program that prints large letters such a Magic Slate (Sunburst), similar to the one shown below.

GERM BUSTERS! - GOOD HEALTH HABITS
What we do...
Why:
How often:
We use...
Who helps us:

Instruction:

- Lead a discussion on germs – what they are and how they can affect the body.
- Read a book or show a movie on good health habits.
- Discuss and list the things students learned from the movie or book.
- Invite one or more health care professionals to speak to the class on habits discussed in class.
- Tell the students that they are going to compile a Germ Busters! book about good habits and practices they can use to stay healthy.
- Share the teacher-made template with the class. Ask the class if there are any additional things they'd like to add, or any things they'd like to change.
- Review word processing software, if necessary.

LEVEL



CONTENT

SOFTWARE

- Choose one of the listed health habits and, with student help, complete the template using classroom resources.
- Assign each student an additional health habit to research and write up on the word processor.
- Have the students print their write-ups. Encourage them to illustrate the write-ups with pictures taken from the resource materials.
- Have the students compile the write-ups into a classroom Germ Busters! book.

Follow-up Activity:

- Have a Germ Busters! competition. Prepare a chart for students to record how often they perform good health habits each day for a specified period of time. At the end of the time period, award students a Germ Buster! certificate summarizing how well they did during that time.

USING A COMIC STRIP MAKER

Objective:

- With the aid of a publishing system, document personal health practices.

Student Prerequisite Skills:

- Ability to read comic strips.
- Completion of first Germ Busters! activity.

Setting the Stage:

- Collect comic strips to use as examples. Focus on usable picture strips to illustrate slogans or riddles related to health habits. If need be, modify these strips to convey health messages.
- Collect riddle books, health habit slogans and posters, health care literature and pictures.
- Using a publishing system, print blank comic strips for students to use.

Instruction:

- Ask students to list the comics they read in the newspaper or elsewhere.
- Project an example of a comic strip onto the overhead viewer. Have students identify how the dialogue is written in various examples, e.g., two people talking, a person talking to him or herself, a person talking to someone not shown in the strip.
- Review health habits learned in the preceding lesson.
- Project one of the previously shown cartoons onto the overhead projector. (This cartoon should have no dialogue in its speech balloons.)
- Have the class as a group come up with dialogue related to good health habits that could be inserted into the cartoon. Encourage the class to be creative and to match content to what the cartoon characters are doing.
- Assign students into pairs to make their own strips using the publishing program.
- Have the students share their comic strips with the rest of the group.

Follow-up Activity:

- Have students find their own strips for reworking dialogue. Compile all the comic strips into a class booklet. Assign one or two students to design a cover and title page for the booklet using a print program (Print Shop).

Heat Reaction

DESCRIPTION: Students use a temperature probe attached to a computer to record heat produced by a chemical reaction. A spreadsheet is used to find the average temperature over the time span. A graphing tool helps students display their experiment in a line graph.

USING A TEMPERATURE PROBE*

Objective:

- Use a computer probe such as "Science Toolkit" (Broderbund) to collect evidence that water added to plaster of Paris produces heat.

Student Prerequisite Skill:

- Ability to read a thermometer.

Setting the Stage:

- Gather the following materials:
  - 1 cup plaster of Paris
  - 1/2 cup water at room temperature
  - measuring cup
  - a disposable container such as a small milk carton
  - a disposable stirring stick
  - a thin plastic sandwich bag
  - a rubber band
  - a temperature probe.

- Put the temperature probe inside the plastic bag and secure before beginning the experiment.
- Connect the temperature probe to the computer and access the "strip chart" from the instruments menu of the "Science Toolkit" chart from the instruments menu of the "Science Toolkit" software.

Instruction:

- Tell students that this experiment will involve recording the heat produced by a chemical reaction. They will be mixing plaster of Paris and water and observing the temperature of the mixture.
- When the strip chart is turned on, point out to students that the first recorded temperature is room temperature.
- Have the students pour the one cup of plaster of Paris into the disposable container, add the 1/2 cup water and stir the mixture quickly.
- Instruct the students to put the temperature probe into the mixture. Tell them to watch the strip chart and comment on what happens to the temperature (it rises due to a chemical reaction that releases heat).
- Instruct the students to let the strip chart record data until the mixture returns to room temperature. Let them select the "review data" option to review and discuss the data on the screen.

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* This lesson requires use of specific software to act as a temperature probe.

LEVEL

CONTENT

SOFTWARE

- Have the students print the data.
- The group may wish to repeat the experiment with variations such as altering the amounts or ratio of the plaster and water.

Follow-up Activity:

- Have the students conduct research on other chemical reactions, such as spontaneous combustion.

USING A SPREADSHEET

Objective:

- Use a spreadsheet to find the average temperature produced by a chemical reaction.

Student Prerequisite Skills:

- Completion of the previous activity.

Setting the Stage:

- Develop a template for use in this activity, such as this one:

```
01        A                    B
02        AVERAGE  TEMPERATURE
03        ==========
04   TIME           TEMPERATURE
05
06  START
07
08  1 MINUTE
09
10  2 MINUTES
11
12  3 MINUTES
13
14  4 MINUTES
15
16  5 MINUTES
17
18                    @AVG(B6..B16)
                  AVERAGE TEMPERATURE
```

Instruction:

- Write the word "average" on the board and ask if anyone can use the word in a sentence (for example, the baseball player's average was over .300 or my average spelling grade is 85%).
- Ask if the class can come to an agreement over the meaning of average.
- Demonstrate how to find an average grade using 80, 90 and 65.
- Tell students that scientists often repeat measurements several times and take an average of the results. This helps protect against error.
- Assign students the task of finding the average temperature of the plaster of Paris throughout the experiment.
- Review spreadsheet software with the students. Show them how the spreadsheet template can be used to do this.

- Have the students use their data with the spreadsheet. When they are done, have them print out copies.
- Hold a class discussion following this activity. What did the students find? Did they all have similar "average readings"?

Follow-up activity:

- Use the strip chart data to find the average temperatures at the half-minute intervals (1-1/2 minutes, 2-1/2 minutes, etc.). Have students compare the final averages of the two tests.

USING AN INFORMATION ORGANIZER (Graph maker)

Objective:

- Print a line graph summarizing the temperature data collected from the plaster of Paris experiment.

Student Prerequisite Skill:

- Completion of the previous temperature probe activities.

Setting the Stage:

- Locate a graph maker, for instance, "MECC Graph" by MECC or "Easy Graph II" by Grolier.
- Gather various line graphs to display as examples.

Instruction:

- Inform students that one way scientists summarize the results of experiments is to make a graph of the results.
- Show various graphs and discuss the key items that are included in each (title, even increments, information clearly labeled).
- Ask students for title suggestions for the plaster of Paris graph.
- Ask students to suggest appropriate choices of measurement labels for the two axes (temperature, time in minutes).

Activity:

- Have each student use the strip chart data to construct a line graph of the plaster of Paris activity for the readings they took.
- Have the students print their graphs and share them with the group. Do they find comparisons easier to make when the data are summarized this way?

Follow-up Activity:

- For variety, have the students print their graphs on colored paper or use colored ribbons.

You Are What You Eat

DESCRIPTION: Students use a printing program to reinforce vocabulary, a database activity to compile nutritional data about various food and a spreadsheet activity to compile nutritional information for a typical day.

USING A PRINTING PROGRAM (Crossword puzzle maker)

Objective:

- Identify vocabulary associated with nutrition.

Student Prerequisite Skill:

- Familiarity with crossword puzzles.

Setting the Stage:

- Locate and have available nutritional information materials.
- Develop vocabulary lists for the number of groups in the class. Include such words as calorie, energy, diet, nutrients, nutrition, protein, fat, carbohydrate, sugar, starch, vitamin, vitamin A, vitamin C, thiamine (B1), riboflavin, niacin, water, minerals, calcium, phosphorus, iron, cholesterol, sodium, food groups, grain.
- Locate a crossword puzzle program for students to use, such as Crossword Magic (Mindscape).

Instruction:

- Introduce this unit by telling students that they will be learning how the foods they eat keep them healthy. Inform students that in this lesson they will increase their nutrition vocabulary by working on a crossword puzzle.
- Elicit a discussion on why knowledge of nutrition-related vocabulary is important.
- Assign students into pairs. Give each pair three vocabulary words for which they are to become experts.
- Have the student pairs research their words using the classroom materials and then develop clues that could be used in a crossword puzzle to represent their assigned vocabulary words.
- Review the crossword puzzle program with the group.
- Have each pair construct and print a puzzle using their clues.
- Have the students complete each other's puzzles.

Follow-up Activity:

- Use a word search shell such as Word Search (Hartley), to create a find-a-word puzzle using vocabulary words associated with nutrition.

USING A DATABASE

Objective:

- Use a database to compile information on the basic food groups.

LEVEL

CONTENT

SOFTWARE

Student Prerequisite Skills:

- Awareness of federal nutritional labeling requirements on food packaging.
- Familiarity with the food groups and their contents.

Setting the Stage:

- Prepare a database template such as this one:

Food Group: Food Item: Calories/serving: Serving Size: Protein (grams): Carbohydrates (grams): Fat (grams):

- Collect cans and boxes with nutritional contents listed, food lists, diets with calories and nutrients listed, etc.
- Prepare lists of foods from various food groups for students to investigate using the resource material.

Instruction:

- Lead the class in a discussion of the need for nutrients and their functions in the body.
- Elicit reasons for the helpfulness of nutritional information. Reasons might include need for a variety of foods each day, need for a mix of nutrients, as a way to monitor one's calories and ensure a balanced diet, etc.
- Display for the class a sampling of nutritional labels.
- Have students form investigation teams for each of the food groups.
- Distribute food lists to each group.
- Review the database software with the class.
- Distribute the template to the students. Brainstorm to see if any revisions are needed.
- Have the students use the classroom resources to complete the template on the computer.
- Print a master list of the food group information.

Follow-up Activities:

- Develop different report formats as the nutrition unit proceeds.
- Have students develop a menu for a casual get-together or a fancy brunch or other party, using the database.
- Use the software Health Watch (Mindscape), specifically the section "Eating Well", to encourage appropriate eating habits.

USING A SPREADSHEET

Objective:

- Use a spreadsheet to keep a record of daily food intake.

Student Prerequisite Skill:

- Ability to read charts and tables that outline nutritional information, such as food product containers or recipes.

Setting the Stage:

- Assemble student resources for nutritional values or make database information available.
- Prepare a student record form, such as this one.

You Are What You Eat

Name_____

Class_____

Date _____

_____

Meal	Food	Serving Size
Breakfast		
Lunch		
Dinner		
Snacks		

- Prepare a fictional 24-hour example.
- Prepare the spreadsheet template, as follows:

	A	B	C	D	E
01					
02					
03					
04	Fill in the following for you and the food you eat.				
05	Name:		Day:	Date:	
06					
07	Meal	Food	#Servings	Calories/ Serving	Total Calories
08					+C9*D9
09					+C8*D8
10					
11					
12					
			GRAND TOTAL =		@SUM(E8..E33)

Instruction:

- Ask students to generate reasons for eating healthy foods.
- Ask them what they have eaten in the last 24 hours and lead a discussion on which of their food choices are

healthy and which are unhealthy (or "empty") foods.

- Introduce the worksheet and request students to track their food intake for 24 hours.
- Review spreadsheet software with the class.
- Complete a sample spreadsheet using the fictional 24-hour food list and the database or other resource material.
- Discuss the information with the class comparing it to recommended daily nutrition levels.
- Have students work in pairs to complete personal spreadsheets and compare their food intake to recommended standards.
- Brainstorm ways to modify personal eating habits to improve personal health.

Follow-up Activities:

- Have students track their diet for several days and analyze the data. Have them set goals for modifying their habits if results indicate they could benefit from changed eating habits. Repeat the activity at a later date and assess each student's attainment of individual goals.
- Compare fast food menus, using a similar spreadsheet. Analyze various meals and compare them nutritionally with a meal prepared at home, for example:

Fast Food Fix

A	B	C	D	E f
01				
02				
03	Restaurant	Meal	Item	CaloriesTotal
04				
05				
06	McDonald's	Lunch	Big Mac	541
07			Fries, regular	211
08			Coke, large	140
09				@SUM (E6..E8)
10				
11				
12	Wendy's	Lunch	Cheesburger	580
13			Fries, large	470
14			Coke, large	150
15				@SUM(E12..E14)

In the Clouds, In the Deep

DESCRIPTION: Students build a database of fats about mountains and rivers. They index the records in their database and create graphs. Data records are used to create quiz questions for students in another class.

USING A DATABASE

Objective:

- Build a database on mountains.

Student Prerequisite Skills:

- Ability to define and describe the concepts of mountains, world, continent, and elevation.
- Familiarity with an atlas, encyclopedia, or almanac.

Setting the Stage:

- Assemble an almanac, atlas, and geography books in the classroom.
- Prior to this lesson, develop a database template such as this one:

Mountain name: Range name: Location (latitude and longitude: Country: Continent: Elevation: Date first climbed:

Instruction:

- Show students pictures of well-known mountains or read short stories to the class about mountains, such as the story of the Donner crossing.
- Review these terms: elevation, climate, topography. Hold a class discussion relating these terms to mountains. Make sure students know that the height of mountains is their elevation; that elevation is measured from sea level; that plants do not grow above the timber line of mountains.
- Instruct students to use the materials to locate mountains that they've heard about before (e.g., Fuji, Kilamanjaro, Mt. Blanc).
- Review database software with students.
- Show students the template developed for the database.
- Have the class decide if other or additional information about mountains should be included on the record (for example, is it used for skiing). Direct students to choose five mountains to research and to enter the information about these mountains into the database.
- Using the database, have the students retrieve the records on mountains, indexed by continent, and print the report.
- Then, have the students arrange mountains by elevation and print the report. Have the students discuss what they see in examining these two files. Are all of the highest mountains on one continent? What other observations can be made about mountains?
- Focus class discussion on what additional data can be retrieved from this file. Why might students consult the database?

LEVEL

CONTENT

SOFTWARE

Follow-up Activity:

- Use the database on States and Traits and/or European Nations and Locations (Designware) to create new information about the mountain database.

USING AN INFORMATION ORGANIZER (Graph maker)

Objective:

- Create a bar graph using data from the database on mountains.

Student Prerequisite Skills:

- Completion of previous database activity.
- Ability to select elements to be compared in a graph.

Setting the Stage:

- Assemble sample bar graphs to show students.
- Develop format for student data entry.

Instruction:

- Review graph-making software [for example, Easy Graph (Grolier), or MECC Graph (MECC)].
- Show students sample bar graphs. Review with the class how to read a bar graph, pointing out the relationship between the axes.
- Using the mountains file, initiate a discussion of the most interesting facts which can be compared on a graph. If need be, have the students brainstorm other facts to add to the database. For example, they might wish to add data on the number of avalanches per year so that they could see the relationship between avalanches and location or elevation.
- Have students designate two elements for comparison, for example, elevation and latitude location.
- Sort the database by these elements and, using the sorted database, have students create graphs on their own.
- Print graphs for display.

Follow-up Activity:

- Have students interpret the relationships depicted in the graphs. For instance, using the example given above, have students decide if mountains get taller further away from the equator or closer to it. Or is there no relationship between latitudes and elevation?

USING A WORD PROCESSOR

Objective:

- Formulate test questions based on the database.

Student Prerequisite Skills:

- Completion of database activity.

Setting the Stage:

- Arrange with a fellow teacher to share in this research project.

Instruction:

- Review the mountain database with the class.
- Tell students they are going to share their database with another class – by making up a quiz for them!
- Instruct students to make up a quiz of 5 questions on mountains using the fields of their database records. For example, students might want to ask:
  - What is the highest mountain in Africa?
  - When did man first climb to the top of K-2?
  - In what country is Mt. Kilamanjaro?
- Have students validate the test questions by manipulating the database to make sure that the questions are verifiable.
- Have the class vote on their 10 favorite questions. This list will then be the quiz developed for the other class.

Follow-up Activity:

- Have a member of the test-taking class report back to the group on their reaction to the quiz. If appropriate, let students show the test-takers how to use the database to find the answers to any questions they missed.
- Allow students to work in groups on the simulations "Where in the World is Carmen San Diego?" or "Where in the USA is Carmen San Diego?" (Broderbund), to further their logic and referencing skills.

USING A DATABASE

Objective:

- Build a database on rivers.

Student Prerequisite Skills:

- Ability to define and describe the concepts of river, source and mouth.
- Familiarity with maps.

Setting the Stage:

- Assemble an almanac, atlas, and geography books in the classroom.
- Prior to this lesson, develop a database template such as this one:

River name: Continent: Source country: Mouth country: Length: Major tributaries: Major cities on banks: Direction of flow:

Instruction:

- Show the class slides or photos of rivers. Accompany this activity with appropriate music such as "Old Man, River" or "Swanee."
- Hold a discussion on rivers, highlighting the concepts of a river's source and mouth. Have the class trace the origin and mouth of the world's famous rivers on a world map or globe. How many of these rivers have famous cities built up near their mouths?

- Review database software with students.
- Show students the record developed for this exercise. Have them decide if there's any additional information about rivers they would like to know (for example, who discovered the river?).
- Assign each student five rivers to research. Have the students enter the information about their rivers into the database.
- Using the database, have the students retrieve records of rivers by continent and print the file.
- Then, have students arrange the file by length of river and print. Ask the students to study thse printouts and comment on their observations. Are the world's longest rivers in any one continent? Do they see a relationship between the length of a river and the continent it is found in?
- Focus class discussion on what additional data can be retrieved from this file. For what uses do students anticipate consulting the database?

Follow-up Activity:

- Graphing and word processing activities which follow the activity on mountains may be adapted to this lesson.
- Continue developing databases for other geographical features such as oceans, canyons, deserts, etc.

Multicultural Americans

DESCRIPTION: Students gain awareness of their families' cultures and learn of contributions by various ethnic groups by interviewing members of their family, and building a database and graphing statistics on class representation.

USING A WORD PROCESSOR

Objective:

- Use a word processor to compose an interview instrument to collect data on family history.

Student Prerequisite Skills:

- Ability to formulate written questions.
- Familiarity with the concept of immigration.

Setting the Stage:

- Locate a world map or globe for use in the class.
-

Instruction:

- Using the map or globe, review historic movements of immigrants to the U.S. with the students. Some of the major waves of immigration were:

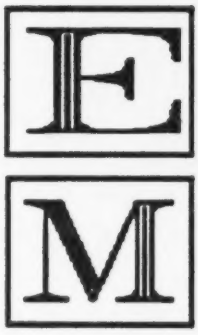
  1790-1820 England,slaves from West Africa
  1820-1890 Germany, Ireland, England, China
  1890-1920 Italy, Austria, Russia
  1920-1960 Mexico, Canada, Germany
  1960-1980 Mexico, Cuba, China Korea, Taiwan
  1980-1987 South East Asia, Central America.

- Remind students that almost all of us are descended from immigrants. Except for Native Americans, the U.S. has been a melting pot for people of other countries.
- Tell students they can find out if their family fits in these waves of immigration by interviewing family members. Have the students make up questions to be asked in the interview. A suitable list might include:

  When did the first member of our family come to the U.S.?
  What country did he or she come from?
  Why did that first family member come here?
  What work did that person do in their native country?
  What kind of work did he/she do in the U.S.?

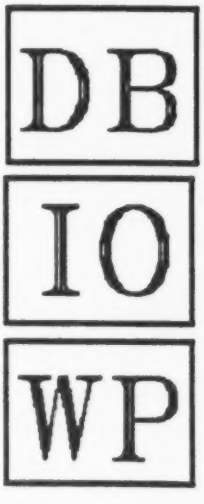
- Help students compose a general letter introducing the project.
- Review the word processing software, if necessary.
- Have students use a word processor to prepare a letter. Have students print copies.
- Instruct students to develop an interview form based on the questions they formulated together. Have students print copies.
- Allow students several days to gather information from members of their families. If they wish to interview out-of-town relatives, allow sufficient time.

LEVEL



CONTENT

SOFTWARE



Follow-up Activities:

- Have students share the results of their interviews with the class.
- Using a map, ask students to put a push pin in their countries of origin. Allow each student to be represented by two push pins, one for their father's family's country of origin and one for their mother's. What countries are most heavily represented?

USING A DATABASE

Objective:

- Translate interview information into a database.

Student Prerequisite Skills:

- Completion of a family interview from word processing activity.

Setting the Stage:

- Ensure that each student has completed at least one interview.
- Discuss and clarify problems. If there is more than one cultural or ethnic representation in the family, instruct students to complete more than one interview form.
- Other problems which may come up are questions about divorced families. Encourage students to complete interview forms even if only one family member can be contacted.
- Create a structure for the database using questions from the interview forms as field names. For example:

Student: Relative interviewed: Country of Origin: When came: Why came: Work in old country: Work here:

Instruction:

- Review use of database manager as a tool for organizing information about families. Review the structure of a record and fields.
- Share the sample database record with the class. Let the students decide if any adjustments need to be made to the format.
- Have the students enter their interview information into the computer.
- Have the students arrange the file by fields of interest and print the file.
- Have the students share the data in their database. Are there any common themes?

Follow-up Activity:

- Ask the students to relate the story behind the data. Data give us facts, but fail to tell us the human side of the story. Encourage students to share what they learned from their relatives about the experience of immigration.

USING AN INFORMATION ORGANIZER (Graph Maker)

Objective:

- Use graphing software to produce a graph showing immigration data.

Student Prerequisite Skills:

- Completion of previous word processor and database activities.
- Familiarity with bar and circle graphs.
- Familiarity with percentages.

Setting the Stage:

- Locate a graphing package, for instance, Easy Graph (Groller).

Instruction:

- Inform students that in this lesson they will illustrate their survey data graphically.
- Direct students to sort through the database to count the number of immigrants from each country. Have students compute the numbers and percents of people involved.
- Brainstorm with the students other statistics of interest to them, such as the years in which immigrants arrived, or the percentage of immigrants who were involved in the same type of work.
- Work with the students to decide the best format for displaying these data -- bar graphs, pie charts, pictographs, etc.
- Review the graphing package instructions with the class.
- Select students to complete graphs for each of the variables decided upon. Print the results.
- Hold a discussion with the class. Do students see new aspects to the immigration story when they display their results graphically?

Follow-up Activity:

- Have the students run the same data, using different types of graphing tools. For instance, show the number of immigrants coming to the U.S. by country of origin in both bar and pie chart form. Have the students examine the charts. Do they feel that one type of chart is easier to read than another? Do they get the same information from a bar chart that they do from a pie chart?

So, What's the News?

DESCRIPTION: Students survey newspapers to compare the focus of printed stories.

USING A DATABASE

Objective:

- Use a database to record news events.

Student Prerequisite Skills:

- Ability to identify news stories.

Setting the Stage:

- Gather a selection of newspapers (for young children, a class newspaper, a school newspaper, a neighborhood newspaper; for older students, a neighborhood paper, a city or town paper, a metropolitan paper or a national paper).
- Develop database record form, such as the following:

WHAT'S IN THE NEWS
Name of Paper:

# Local News		
# State News	# Weather	# Comics
# National News	# Entertainment	# Sports
# International News	# Advertisements	

Instruction:

- Let the students look through the assembled newspapers.
- Tell students they are going to survey these papers to see what kind of news is given the most coverage.
- Assign one newspaper to a pair or group of students.
- Pass out the student record sheet.
- Have the students skim the stories in the paper they're reviewing to find out if they focus on local (city or country), State, national or world news.
- Instruct students in the use of the database software, if necessary.
- Demonstrate how to enter totals for each kind of news onto the computer.
- Print out data records.
- Hold a discussion on what the students find. What types of stories receive the most coverage? The least coverage?

Follow-up Activity:

- Create sub-categories within the major categories for major types of news (crime, arms control negotiations, natural disasters) for more in-depth study of news reported. Have the students sort through the database to see the types of stories being covered.

LEVEL

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CONTENT

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SOFTWARE

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USING AN INFORMATION ORGANIZER (Graph maker)

Objective:

- Use graphing software to develop a pictorial representation of information covered in newspapers.

Student Prerequisite Skills:

- Completion of the database activity.
- Familiarity with graphs.

Setting the Stage:

- Assemble different types of graphs for students to review.

Instruction:

- Point out to students that it is difficult to tell which newspapers print the most news in each of the major categories by looking at the data printed out.
- Brainstorm other ways of presenting the information that might make the answer readily apparent.
- Discuss various kinds of graphs, using the assembled materials for reference.
- Instruct students in the use of the chosen graphing tool.
- Have students decide which type of graphing tool they'd like to use to display the data on news stories.
- Have students discuss the results of this exercise. Did they discover anything new from graphing the data that they couldn't tell from looking through the database? What added dimension do graphs provide?
- Have students arrange the newspaper database by type of news story.
- Using arranged data files, students create one graph for each news category (local, State, etc.).

Follow-up Activity:

- For each newspaper, create a graph showing how many stories are about each news category. Did this profile reveal what the students expected to find?

Water, water Everywhere

DESCRIPTION: Students develop their own glossary of geography terms related to bodies of water and illustrate them.

USING A WORD PROCESSOR

Objectives:

- Use a word processor to identify and define large bodies of water.

Student Prerequisite Skills:

- Map reading skills.

Setting the Stage:

- Bring a wall map of the world to class.
- Prepare a ditto of a world map with bodies of water unlabelled.

Instruction:

- Tell students that 70 percent of the world's surface is covered by water, and that they will learn the names for the largest bodies of water on a world map.
- Use the wall map to identify oceans and seas around the world.
- Introduce the following vocabulary during the presentation: ocean, sea, gulf, lake, port, bay, strait, sound.
- Have the students label oceans, seas, gulfs, bays etc., with their correct names on their individual outline maps of the world.
- Review word processor software, if necessary.
- To accompany the map activity, have students verbally define these geographic terms and locations on the word processor. Have the students print their finished work.
- Have the students compile their definitions into a notebook entitled "Geographic Terms and Places."

Follow-up Activity:

- Continue this exercise, including lesser known bodies of water. For example, have students use a map of their state or county to fill in rivers, creeks, lakes, etc. Then include these places in their notebook.

USING A PRINTING PROGRAM

Objective:

- Use a graphics package to draw illustrations for the Geographic Terms and Places notebook.

Student Prerequisite Skill:

- Completion of word processing activity.

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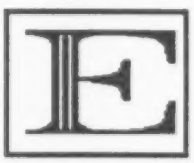

CONTENT

SOFTWARE

Setting the Stage:

- Display photos or slides of well-known bodies of water.

Instruction:

- Introduce this lesson as an enhancement to the first exercise. Here, students will be illustrating the sites and terms described verbally in their Geographic Terms and Places notebook.
- Instruct students in use of graphics program.
- Ask students to first sketch their ideas by hand before drawing at the computer or selecting from a graphics catalog. Have them look through the displayed photos for inspiration.
- Have the students use the graphics program to create the sketched illustrations.
- After the illustrations are completed, help students to print the graphics and then cut-and-paste them into the appropriate places in their notebooks.

Follow-up Activity:

- Have students design a cover for the notebook, using the graphics package.

Dateline: School

DESCRIPTION: Students use a database to compile information on holidays and other celebratory occasions. With a calendar maker, they develop a system for keeping track of class assignments. Students also use a word processor to report on events recorded in the calendar file.

USING A DATABASE

Objective:

- Use a database to store information on important holidays and dates.

Student Prerequisite Skills:

- Familiarity with common holidays.

Setting the Stage:

- Assemble calendars for every student or pair of students. Include special interest calendars such as those focusing on women, civil rights, other nations, religions, etc.
- Divide a ditto master into 6 or 8 sections so that each can be used as a note card. In each cell of the master, print the following:

Date: Holiday: Significance:

Instruction:

- Ask students to name as many holidays as they can think of. As each is mentioned, jot it on the board. It is not necessary that students know the exact dates of the holidays.
- As students are naming holidays, lead a discussion on what makes a date important.
- Pass out the ditto worksheet of notecards to students.
- Instruct students to complete the worksheet, working either individually or in pairs. They should complete the notecards with the names and dates of holidays they regard as important.
- Review database software with the class.
- Have the students enter their notecards onto a database, using the notecard categories for database fields. Explain to students that, for easy retrieval, dates should be entered numerically, rather than spelled out. For those dates that are one digit, a zero should precede the entry so that all months and days are two digits in length. For example, a
- sample date entry might be:

07/04/00 for July 4th, 1999

- Once the database is assembled, it might be helpful to arrange it chronologically. Have the students make sure that no holidays have been entered more than once. (If there are duplicates, extras should be deleted.)

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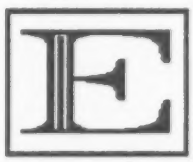

CONTENT

SOFTWARE

Follow-up Activities:

- Have students make personal calendars by editing the class calendar. After each student has a copy of the class database on diskette, instruct students in deleting and inserting records on the master database. The personal calendars can contain such events as their birthdays, vacation plans, etc.
- Instruct students to print monthly "dates of interest" calendars for themselves. At the beginning of each month students can use the search function to find entries for that month and print a list of important dates in the month ahead.

USING AN INFORMATION ORGANIZER (Calendar Maker)

Objective:

- Use an information organizer to schedule class assignments on a personal calendar.

Student Prerequisite Skills:

- Familiarity with calendars.
- An understanding of the concept of a deadline or "due date."

Setting the Stage:

- Assemble calendar maker software. In choosing software, three types of utility software might be used. Consider The Print Shop Companion (Broderbund) and Print Your Own Calendar (Hartley). They are especially designed calendar builders. Some desktop accessory programs such as Pinpoint (Pinpoint) have built-in calendar producing features, too. If you have a timeline program such as Time Liner (Tom Snyder Productions), you can use it in place of a calendar maker.

Instruction:

- Ask students if they have ever had the experience of having the date of something important "slip their minds."
- Elicit some strategies they use to remember their responsibilities and tell students that many adults in their business and personal lives use computer calendars to remind themselves of things.
- Brainstorm school-related items for the upcoming week that might be important to include on a reminder calendar.
- Review calendar software with the students.
- Point out that when using a computer calendar program, space is limited. Ask for suggestions and come to some agreement on abbreviating specific items.
- Have the students use the calendar program to create a weekly schedule of school activities and assignments and print copies to take home.

Follow-up Activity:

- At the beginning of each month, designate one student to prepare a class calendar for the month that includes upcoming events. Students could keep these in their notebooks and update the calendars as needs arise.

USING A WORD PROCESSOR

Objective:

- Use a word processor to compose an article summarizing classroom events for the past month using a class-generated calendar as one source of information.

Student Prerequisite Skills:

- Completion of the previous activity for at least one month's duration.

Setting the Stage:

- Assemble copies of the student-generated class calendar.

Instruction:

- Ask students to imagine they are newspaper reporters writing an article about classroom happenings for the past month. What events might they select to write about? Possible idea generators are:
  - funny things that happened
  - special projects or exciting times
  - assignments completed
- As the students suggest topics, record their ideas on the chalkboard.
- Review word processing software, if necessary.
- Assign students into groups of two or three. Instruct each group to pick one of the suggested topics and to write an article on it, using the word processor. The student calendar should be used for reference in writing the article.
- Proofread the accounts individually with students, helping them to make corrections, if necessary.
- Reproduce the reports and distribute them around the school.

Follow-up Activity:

- As students become more proficient, have them use a calendar at the beginning of each month to write an article called "Upcoming Events." Send a copy home with each student.

On My Best Behavior

DESCRIPTION: Students will record and graph their own behavior, based on a behavior management plan. Each student enters behavioral rewards into the spreadsheet and generates a graph of the entered data.

USING A SPREADSHEET

Objective:

- Enter information into a spreadsheet to track progress on a teacher-constructed behavior management plan.

Student Prerequisite Skills:

- Familiarity with behavior management.

Setting the Stage:

- Determine the criteria for rewarding individual student improvement. Set times for the students to update their behavior management system, within the class schedule.
- Prepare the spreadsheet template for each student included in this project. For example:

MY POINTS!

01									
02	Week of	Week #	MON	TUES	WED	THURS	FRI	TOTAL	
03	March								
04	= = =

- Have students enter their own points into the spreadsheet with adult supervision.
- At the end of the week, students may print copies of the spreadsheet for themselves or as part of a parent report.

Follow-up Activities:

- At the end of the month (or other predetermined time period such as the end of the grading period), the spreadsheet should be printed and used for a report to each student's parents.
- Begin new spreadsheets for each student at the end of the predetermined time.
- Save old files for comparison of progress as the year goes on.

USING AN INFORMATION ORGANIZER (Graph maker)

Objective:

- Generate a graph using behavior management point information.

Student Prerequisite Skills:

- Ability to read and construct line graphs.
- Completion of spreadsheet activity.

Setting the Stage:

- Assemble sample graphs.

Instruction:

- Draw a sample graph on a chalkboard or overhead projector.
- Review the components of a graph with students, labeling axes.
- Use a sample copy of the management plan to label point on the graph. Have students brainstorm as to what should be included on the graph.
- Review graphing software with students.
- Instruct students to enter the points form their own behavior plans onto a graph, using the computer software.
- Discuss with each student how the graph should be interpreted: a low number of points indicates progress, a high number indicates a lack of progress. Be sure to reassure students that a certain number of points is to be expected.
- Have the students periodically update the graphs. Completed graphs can be printed out and stored in a file folder.

Follow-up Activity:

- To reinforce students who are making progress with their behavior plans, use Certificate Maker (Springboard) or Principal's Assistant (Mindscape) to make a certificate recognizing their achievements.

My Personal Information Bank

DESCRIPTION: Students will learn about the type of information they need to complete job applications. They use a database to construct a personal file of data they can update periodically. Students also construct a database of individual references they can use in the job or college application process.

USING A DATABASE

Objective:

- Develop a personal database to use for job and college application completion.

Student Prerequisite Skills:

Familiarity with personal data such as social security number, address, etc.

Setting the Stage:

- Collect a variety of forms that require personal information, e.g., social security number applications, job applications, work permits, driver's and non-driver's licenses, etc.
- Develop database format and report form, such as this one:

Personal Data File

PERSONAL INFORMATION:

(Name) Last: First: Middle:
Street Address: Apt:
City: State: Zip: Telephone:
Birth date (Mo Day Year): Place of Birth (City, State):
Social Security Number:
Emergency Contact: Telephone:

EDUCATION: (Put most recent school attended first)

Schools Attended:
City, State:
Dates Attended (Year to Year):

PREVIOUS EXPERIENCE: (Put most recent job held first)

Employer:
Address : Telephone :
Job Title: Dates Worked:
Duties Performed:

LEVEL

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CONTENT

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Instruction:

- Show application forms to students. Have students brainstorm the different types of forms encountered in the world of work. Ask students to identify information that is usually included on application forms.
- Discuss the rationale for compiling the information requested prior to applying for jobs.
- Distribute sample forms to students; review them and add to list of identified information the class has generated. Discuss what information is most important.
- Distribute a hardcopy of the personal database format.
- Review and modify the database format, using a class display, adding students' suggestions.
- Review database software with the class.
- Use a student volunteer to demonstrate completing and printing the database format.
- Have the students complete and print their own individual database report forms.
- A peer or teacher should review the information for clarity, completeness and accuracy. Following revision, save and print copies for student use and a classroom career folder.

Follow-up Activity:

- Periodically review student database report forms and update as needed. Encourage students who haven't yet acquired social security numbers do so.
- Develop a career interest profile containing information on students' interests and hobbies and add to personal information profiles. Examples of database fields might include:

Hobbies: Clubs: Other Interests: Volunteer Experience: School Subjects I Like:

USING A DATABASE

Objective:

Assemble a database of personal references for use on job and/or college applications.

Setting the Stage:

Assemble sample reference letters for students to review.

Instruction:

- Encourage students to review sample reference letters.
- Following a review of these letters, have students discuss what the purpose of a reference is. Ask them to define what they think are the qualities of a good reference. Some of the points might be:
  - the person has known you for a long period of time,
  - the person has good things to say about you, and
  - the person has knowledge of positive things you have done.
- Have students list several adults who might be good references for them to use when completing application forms.
- Construct a sample database that they could use to record information on potential references. For example, they might wish to include address, daytime phone number and relationship.

- Have students use the format to request information from at least three references. Role play ways for students to ask people to be references.
- Have students enter individual information about their references into the database program.

Follow-up Activity:

- Have a local placement agency representative visit the class to speak on the role references play in the application process.

Student, Know Thyself

DESCRIPTION: Students learn to keep track of their school assignments and gain an awareness of managing time efficiently by using a graphing program to display their daily activities and a word processor to create a personal study plan.

USING AN INFORMATION ORGANIZER (Graph maker)

Objective:

- Use graph maker software to chart daily personal activities.

Student Prerequisite Skills:

- Ability to plan time.

Setting the Stage:

- Prepare a worksheet similar to the one shown below and duplicate copies for students.

Name _____

Class _____

How I Spend My Time

Record the time in hours that you spend doing the listed activities. Use a typical school day. Times don't have to be exact, but use your closest guess. Your "time spent" should add up to 24 hours in one day.

Activity	Time Spent
Sleeping	_____
Eating meals	_____
Attending school classes	_____
Studying and doing homework	_____
Socializing with friends	_____
Participating in sports	_____
Participating in clubs or hobbies	_____
Other: _____	_____
Other: _____	_____

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- Ask the class to list different activities they do on a typical day and enter them into the word processor. (If possible, use a large screen monitor).
- Use yourself as an example to demonstrate how you allocate your time in a typical day.
- Hand out copies of the worksheet.
- Tell students to track their activities for the next 24 hours.
- Explain that the worksheet will be used to make a graph to illustrate how their time is spent.
- Share and discuss student time sheets the next day.
- Review the graphing software with students.
- Help students enter the data from their worksheets onto the computer.
- Have students print the results.
- Discuss the information on the student graphs with the class. Do they think they use their time well? How do they think they could better manage their time? What would they do if they were given two extra hours in a day?

Follow-up Activity:

- Periodically repeat the activity and compare individual student graphs. Help students determine whether they have made changes in the way they use their time.

USING A WORD PROCESSOR

Objective:

- Identify learning factors and environments that are conducive to using time wisely.
- Use a word processor to create an individualized learning style profile.

Setting the Stage:

- Develop a worksheet of learning factors and environments similar to the one on the next page.

Instruction:

- Lead the class in a discussion of learning styles and individual preferences in studying.
- Conduct an informal student survey about several environment components, e.g., Who works best when it is quiet? Who works best when sitting on a soft chair?
- Distribute copies of the worksheet, My Study Profile.
- Review the categories of learning style indicators that influence the way one learns and studies.
- Brainstorm indicators that fit in each category. Ask students to think about a time they were very successful in studying for a test, doing homework or accomplishing something else they feel proud about.
- Using yourself as an example, identify personal factors that help you learn best and delete those factors that do not fit your profile.
- Have a student volunteer create a profile with a classmate helping to identify success factors through questioning.
- Ask students to create their own personal profiles by identifying those factors that help them learn and deleting those that do not.
- Review word processing software.
- Have students summarize these profiles on the word processor.

Follow-up Activity:

- Ask students to reflect on how they can use the knowledge they've gained about their study habits to improve their school performance.

NAME _____

CLASS _____

DATE _____

My Study Profile

For each underlined phrase, circle the responses that apply to you. You can circle as many responses as you think are appropriate.

The best ways I learn things are to...

read about them.

hear about them or listen to something about them.

see them in pictures or films.

see them and hear them at the same time.

try to do them.

write them in my own words.

explain or teach them to someone else.

I study or learn best by working...

in large groups.

in small groups.

by myself.

with someone I choose.

with someone I don't know.

with learning games.

on team projects.

with learning packets I can do at my own pace.

with someone to help me review the material.

The best time for me to do homework and study is...

during study period at school.

right after school.

just before dinner.

right after dinner.

late at night.

early in the morning.

I study best when I'm...

in a place with bright, direct light.

in a place with good light that is not too bright.

in a very quiet place.

in a place with a little background noise.

in a cool place.

in a warm place.

sitting at a desk or table.

allowed to sit in a soft chair or lay down.

able to take breaks every once in a while.

Survey Says ...

DESCRIPTION: Students complete surveys about their "favorites" and use the information to construct bar graphs. Students use information about their favorite things to construct riddles.

USING AN INFORMATION ORGANIZER (Graph Maker)

Objectives:

- Use a graph maker to illustrate class favorites.

Student Prerequisite Skill:

- Ability to complete a survey questionnaire.

Setting the Stage:

- Develop a simple survey concerning student favorites, such as this one:

My favorite school activity is _____
My favorite after-school activity is_____
My favorite color is _____
My favorite dessert is_____
My favorite book is_____
My favorite tv program is _____
My favorite season is_____
My favorite meal is_____
My favorite _____ is_____

- Collect magazines with pictures students can use to supplement words on the survey (particularly for non- or poor readers).

Instruction:

- Lead a discussion of individual likes and dislikes; use simple examples to survey the class and record on the chalkboard or overhead.
- Discuss how differences make everyone unique and therefore more interesting. Ask students what the world would be like if everyone only ate pizza or only used blue paint on their houses, etc.
- Help students identify how knowing your own and others' likes and dislikes might be useful; list their ideas on the class display.
- Introduce the survey and help students complete it. This might require reading questions individually, enlisting the help of peer tutors or drawing picture cues for students whose reading skills are weak.
- When surveys are complete, ask students for their responses and make a tally for each question for class display.
- Review graph maker software with class. Explain how they can use charts to show which were the most popular choices for each item surveyed.
- Assign each student a question to graph, using the software.
- Print the results and lead a class discussion on what they found. Was there much class consensus?

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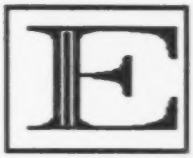

CONTENT

SOFTWARE

Follow-up Activity:

- Display the graphs on a bulletin board. Have students illustrate the graphs with pictures from magazines.

USING A PRINTING PROGRAM

Objective:

- Use a printing program to construct clues to riddles.

Student Prerequisite Skill:

- Completion of previous activity.

Setting the Stage:

- Develop a student riddle worksheet, such as the one which follows:

Who Am I? - Riddle Record

NAME_____

CLASS_____

DATE_____

Riddle # ___
Riddle answer: I'm _____!!!!!!! Riddle ___
Riddle answer: _____ Riddle# ___
Riddle answer: _____ Riddle # ___
Riddle answer: _____ Riddle # ___

Who Am I? - Guess Record

Riddle # ___ Number of clues: ___

Riddle # ___ Number of clues: ___

Riddle # ___ Number of clues: ___

Riddle # ___ Number of clues: ___

- Construct a sample riddle using Riddle Me (Mindscape) software.
- Assemble examples of riddles.

Instruction:

- Introduce this lesson with a riddle. Have the class discuss what makes a riddle a riddle. What are its components? What makes them fun to solve?
- Explain that in this lesson students will use the personal data learned in the previous lesson to construct riddles.

- Help students develop several clues that can be used to solve a riddle in a format such as: "Her favorite color is red" or "He's the only one in the class who doesn't like French fries."
- Present the teacher-made riddle to the class. Have the students solve it. Then discuss why it was or was not a good riddle.
- Brainstorm and list student suggestions for "good" and "tricky" clues.
- Have students pair up to work on riddles.
- Introduce the riddle maker software to the class. Show students how to enter the template into the computer.
- Have the students enter their riddles into the computer and print them.
- Have the students present their riddles to the class for solving.

Follow-up Activities:

- Print a class book of riddles. Have students construct riddles about school personnel.
- Using a shell (Certificate Maker), design awards for students – who solves the most problems, who solves riddles most quickly, who writes the best (or the funniest) clues, who is the most creative, etc.

A Home of My Own

DESCRIPTION: Using local newspapers and real estate listings as resources, students identify information they need for renting an apartment or home. Students use a word processor to write advertisements for renting an apartment or house and construct a database file with information about local rental apartments and rental agencies.

USING A WORD PROCESSOR

Objectives:

- Identify important rental housing information.
- Use a word processor to write a classified advertisement that contains common newspaper vocabulary and abbreviations.

Student Prerequisite Skills:

- Familiarity with classified ads.

Setting the Stage:

- Gather local newspapers, maps and real estate information for student reference.
- Review vocabulary and abbreviations found in typical advertisements. To do this, you may wish to have students construct puzzles using a program such a Crossword Magic (Mindscape).
- Make overhead displays or copies of a local map and some local classified ads.

Instruction:

- Have the group brainstorm ideas about the things that people look for and consider before renting a place in which to live. Elicit through discussion such things as cost, proximity to work or public transportation, general location, number of rooms, etc.
- Review sample classified ads with the group. List in columns, on a worksheet or overhead projector, components that are present in every ad (location, number of bedrooms and
- bathrooms), and components that are not present in all ads but are included as enticements (wall-to-wall carpeting, washer and dryer, fireplaces, etc.).
- Divide the group into teams of two.
- If necessary, review word processing software.
- Have each team compose a sample advertisement on the word processor, print them out, and share them with their classmates.

Follow-up Activities:

- Use the word processor to merge all of the composed ads into one file.
- Have the students decide how these ads should be ordered. Then, as a class, print the ads as a classified section for a classroom newspaper.

USING A DATABASE

Objective:

- Structure a database and arrange data according to personal housing needs.

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Student Prerequisite Skills:

- Familiarity with classified ads.
- Ability to prioritize needs.

Setting the Stage:

- Have a local rental agent visit the class to discuss the process of renting an apartment or house (for example, locating a suitable place, reviewing the legal papers, having a credit check run, etc.).
- Gather local newspapers, maps, current apartment guides and real estate information for student reference.
- Review the vocabulary and content of the classified ads, apartment guides, and real estate information.

Instruction:

- Have the students brainstorm what information they would need to know in deciding on an appropriate rental situation (e.g., number of bedrooms, deposit required, cost of utilities, etc.).
- Working with the group, develop a template similar in design to this one, which displays information of relevance to the students:

Rental address:
Rental office telephone #:
Rent/Month:
# of bedrooms:
Length of lease:
Deposit required? (Y/N)
Deposit amount:
Utilities included: (Y/N)
Average cost of utilities:
Agency fee:
Refundable fees:
Other information (e.g., near work, on bus route, close to stores, etc.)

- Review database software with the students.
- Have students enter classified ad information into the database, using the assembled reference material.
- Instruct students to sort through the database to find rental properties that meet their own individual needs and to print out ads that look of interest to them.
- Have students discuss what the next step should be in finding an apartment. Where do they go once they have ads in hand?

Follow-up Activity:

- Have students develop a spreadsheet similar to the one below that can be used to compare the costs of the various rental developments found in the database. Discuss the advantages and disadvantages of factors that influence expenses, for example, utilities included in the rent, location of the complex, fees, proximity to transportation, etc.

AVERAGE MONTHLY EXPENSES

01	A	B	C	D	E	F
02	Name	Rent	Utilities	Total House	No. People	Cost
03	of Apt.	per Month	per Month	Expenses	House	per Person
04						
05	Green Acres	$370	$140	$510	3	$170
06	Blue Bayou	510	225	735	4	183.75
07	Red Tide	290	80	370	1	370
08	Riverside	290	100	390	2	195
09	Black Bay	640	220	860	4	215

It's an Emergency!

DESCRIPTION: Using a word processor, students learn skills for dealing with emergency situations. Students also use a graphics package to create posters illustrating the ideas they've learned.

USING A WORD PROCESSOR

Objective:

- Develop strategies for handling emergencies.
- Use a word processor to record appropriate procedures for handling specific situations.

Student Prerequisite Skills:

- Ability to use reference materials.
- Ability to sequence events.

Setting the Stage:

- Gather safety manuals and other reference materials related to emergency preparedness.
- Locate and bring to class a hole puncher and binder.

Instruction:

- Have students define the word "emergency" in their own words.
- Ask the class for examples of emergencies. Record their responses on the chalkboard.
- Pick one of the examples given by the class. For example, an accidental poisoning.
- Have the class use the reference materials to find out what they should do if a poisoning emergency should arise. As a group, develop an appropriate step-by-step procedure for dealing with the emergency. For this example, an appropriate strategy would be:
  1. Locate the bottle or container of the substance that was swallowed.
  2. Bring this container with you to the phone.
  3. Call the Poison Control Center.
  4. Tell the person who answers exactly what events took place – i.e., how much of the substance was swallowed, when this happened, how the victim is reacting, etc.
  5. Write down everything this person tells you to do.
  6. Immediately carry out the instructions. Call a doctor, ambulance, or other support person as instructed.
- Divide the class into small groups of three or four students. Assign each group one of the emergencies listed on the board. Instruct the gropus to use the reference materials to develop a strategy for that emergency.
- Review word processing software with the class.
- Have each group type in the strategy they've developed, using this format:

EMERGENCY SITUATION: PROCEDURES FOR HANDLING: Step 1: Step 2: Step 3: Step 4: Step 5:

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- Have the students print their strategies. Ask the students to punch the left-hand margin of their printouts with the hole-puncher and file the printouts in a classroom Emergency! Notebook. Students should file their scenarios alphabetically, by emergency situation.
- Ask students to review the notebook and develop a plan for making it most useful to the class. (E.g., Should it be located at the teacher's desk? Should students be required to review the plans monthly? etc.).

Follow-up Activity:

- Assign a student to use a printing tool such as Print Shop (Broderbund) to design a title page and cover for the Emergency! Notebook.

USING A PRINTING PROGRAM

Objective:

- Use a printing program to construct a poster illustrating what to do in a dangerous situation.

Student Prerequisite Skills:

- Completion of the previous activity.

Setting the Stage:

- Arrange for firefighters, police and medical workers to talk with students about dangerous events and how to handle them.
- Assemble selected safety posters.

Instruction:

- Invite a guest speaker such as a firefighter, police officer, or medical worker to speak to the class on the subject of emergencies and what should be done when they occur.
- Following the presentation, have the class choose an emergency topic to focus on, based on the speaker's comments.
- Have the class research this topic further, being sure to consult their own Emergency! Notebook.
- Have the class review safety posters. How do these posters convey content visually? What techniques do artists use to get their message across?
- Review the printing program with the class.
- With the printing program, have each student develop and print a poster that conveys a safety message relevant to the emergency situation they researched.
- Have each student present his or her poster to the class, explaining what he or she has tried to achieve in the poster. Do common themes and approaches emerge?

Follow-up Activities:

- Display the students' posters on a bulletin board in the classroom or in the school.
- Invite the students to play game-like activities for learning how to prevent emergencies using Safety First (Mindscape).

Just for the Fun of It

DESCRIPTION: Students increase their knowledge and understanding of various leisure time activities by gathering information from local groups via mail and phone, developing and conducting a survey of people's interests, and compiling the information in a database.

USING A WORD PROCESSOR

Objective:

- Identify organizations that offer leisure activities and use a word processor to write letters requesting promotional materials.

Student Prerequisite Skills:

- Ability to use telephone books and zip code directories to look up information.
- Familiarity with writing business letters.

Setting the Stage:

- Gather information about local organizations that offer activities in which students can participate.
- Provide telephone books and community resource guides for student reference.
- Provide a model or construct a business letter template on the word processor for students to use as a guide.

Instruction:

- Discuss the meaning of leisure time – what it is and how it is used by a variety of people students are familiar with, such as teachers, movie stars, etc.
- Have students list different things they do that can be classified as leisure time activities.
- From the list, have students come to a consensus about general categories for classifying these activities (e.g., clubs, hobbies, sports, and education).
- Form diads or triads of students to investigate each category.
- Have the groups identify the most important information about activities in their assigned categories, e.g., what equipment is needed, are activities seasonal, etc.
- Instruct each group to choose a method for compiling information from local organizations to obtain the needed information. Individual needs should determine the method (for example, one group might use teacher provided brochures, while another telephones or writes for information).
- Determine the number of organizations and activities to be investigated by each group (e.g., two or three organizations with three activities each), and give this assignment to each group.
- Help students in their investigative efforts. For instance:
  Use a word processor to write questions to focus student inquiries.
  Have students sending business letters enter specific organization information into a word processor template, using the school for the return address.
- Have students summarize what they have found on the word processor. Printouts of these summaries can be passed out to the other members of the class.
- Have students share their findings with the rest of the class. Are the leisure activities presented ones the students would be interested in pursuing further. If so, how should they go about doing this?

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Follow-up Activity:

- Have students use a graphics tool such as Print Shop (Broderbund) to design their own personal class stationery.

USING A DATABASE

Objective:

- Construct a database containing important information about organizations that offer leisure time activities for students.

Student Prerequisite Skill:

- Completion of word processing activity.

Setting the Stage:

- Prepare the database file ahead of time using fields decided upon by students in the word processing activity. For example:

CATEGORY:	Sports
ACTIVITY:	Football
NAME OF GROUP:	Maryvale Junior Varsity Football Team
TELEPHONE:	555-4444
HOW TO JOIN:	See coach
AGE(S):	13-15
DAY(S):	Monday-Thursday
START TIME:	3:00 pm
END TIME:	5:00 pm
PLACE(S):	Maryvale Football Field
COST:	None
IMPORTANT NOTES:	Tryouts the first week of September. Boys only can play.

Instruction:

- Discuss different types of leisure activities and the information students need in order to participate.
- Use a newspaper listing or calendar to locate upcoming events.
- Have students contact local organizations to compile information about activities. Have students report back to the class for discussion of whether or not the activity is one they would enjoy.
- Have the group decide which of the activities surveyed should be included in a database.
- Review the database software with the class.
- Have small group members enter the information into the computer file for each activity.
- As records are completed, have the students print copies for a class reference book organized by activity.
- Show students how to arrange records alphabetically within categories.

Follow-up Activity:

- Illustrate how report form layouts are constructed by planning one with the class on the chalkboard or overhead.
- Help students construct and print formats for specific purposes, e.g., physical activity:

REPORT:	Physical activities
CATEGORY:	Sports
ACTIVITY:	Soccer
GROUP:	East Pawtucket County Team
DAY(S):	Sat. 10 -2 and Tues. 3:30-6

REPORT:	Physical activities
CATEGORY:	Sports
ACTIVITY:	Gymnastics
GROUP:	Meridian Jr. High School Team
DAY(S):	Mon.-Thurs. 3:00-5:30

USING AN INFORMATION ORGANIZER (Survey maker)

Objective:

- Develop and administer a survey to determine people's preferences for leisure time activities and organizations.

Student Prerequisite Skill:

- Familiarity with bar graphs.

Setting the Stage:

- Arrange for students to administer the activity survey in one or several classes or investigate the possibility of including the survey in the school newspaper.
- Develop a tally form if one is not included in the survey program.

Instruction:

- Lead a discussion in the purpose of a survey and how it can be used to discover people's preferences.
- Provide students with a list of leisure time categories and examples of activities in the categories.
- Conduct an informal survey of the class and record how many students participate in the listed activities.
- Survey the class for possible interest in activities in which they are not presently involved.
- Discuss ways an interest survey might be useful, for example its use in determining what extracurricular activities would be of interest to the students, how many students are available for afterschool projects, etc.
- Help the class decide the activities to be included in the survey and to develop a general survey questionnaire. If the class has constructed a database of activities, this can be used to list the targeted activities.
- Help students use the survey maker program to develop survey sheets to distribute to friends, siblings and students in other classes.
- Have the students practice asking others to participate in the survey and administering it.
- Have students administer the survey to a predetermined number of people. (Students should ask if the person has already taken the survey.)
- Review the tally component of the survey program with the class, demonstrating its use. Have students work in pairs to help each other complete the tally for each set of responses.
- Print the survey and tally.
- Discuss the results in terms of how students can use this information in choosing activities for their own leisure pursuits.

Follow-up Activity:

- Using a graphing program, have students illustrate the survey results in graph form and report survey results in the school newspaper.

Nutrition Knowhow

DESCRIPTION: Students compose a business letter that they actually mail requesting free nutritional information. They use a spreadsheet to examine the energy expenditure of common activities and construct a database to categorize common foods by food groups and record their calories per serving.

USING A SPREADSHEET

Objectives:

- Use a spreadsheet to calculate how many calories are burned up during various activities.
- Understand the relationship between physical activity and the amount of calories used.

Student Prerequisite Skills:

- Ability to round numbers to the thousands.

Setting the Stage:

- Type in the following spreadsheet template:

	A	B	C	D	E	F	G
01			BURNING ENERGY				
02							
03			Calories		Hours		Total
04		Activity	Burned Up/Hour		Spent		Calories Used
05							
06		lying still	10				+C6*E6
07		eating	30				+C7*E7
08		reading aloud	30				+C8*E8
09		sitting quietly	30				and so on...
10		writing	35				
11		peeling potatoes		40			
12		dressing	50				
13		dishwashing	70				
14		sweeping	100				
15		singing	130				
16		bicycling slowly	175				
17		dancing	250				
18		running	500				
19		swimming	550				
20							
21			TOTAL CALORIES =				@SUM(G6..G19)

Instruction:

- Review the spreadsheet software with the class, if necessary. Arrange for the class to view the spreadsheet on one computer, preferably large-screened or projected.
- Write the words "Big Mac," "Regular Fries," and "Apple Pie" on the board with the numbers 570, 220 and 250 under them. Inform the students that these are the numbers of calories contained in these three items.

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- Tell students that calories are used to measure the energy people get from foods. If people take in more calories than they use, they gain weight. If they take in fewer calories, they lose weight.
- Ask students to add up the number of calories in this meal and round it off (about 1000).
- Refer to the spreadsheet. Point out to students that even minor activity adds to expenditures of energy.
- Ask students to pretend they have 6 hours until their next meal. Ask for suggested amounts of time they might do certain activities adding up to 6 hours.
- Enter the number of hours they wish to dedicate to selected activities. Parts of hours are allowed.
- Review how numbers are entered in a spreadsheet. Remind students that it is fine to enter 1/2 or 1/4, but the computer will convert it to decimal form. To enter a mixed number in to the spreadsheet, it would need to be converted to decimal form. Encourage students to monitor the totals as entries are made.
- After approximately 1000 calories (+ or - 100) have been accounted for, print the spreadsheet and ask for a second way of using up 1000 calories.
- Point out to students that people who are less active have a more difficult time using up their excess calories.
- Emphasize that people who are involved in regular exercise programs usually find it easier to balance their calorie intake than non-exercisers.

Follow-up Activity:

- Visit a local fast food restaurant to pick up copies of their free nutrition books.
- Provide students with various calorie counts to "burn up" using the computer spreadsheet.
- Students can print out solutions for display or to file in their notebooks.

USING A DATABASE

Objectives:

- Compile a database of nutritional information about foods.

Student Prerequisite Skills:

- Ability to read and record information from food package labels.
- Completion of the spreadsheet activity.

Setting the Stage:

- Divide a ditto sheet into four quarters for students' notes. In each quarter, list the fields for the prospective database. An example might be:

FOOD:
COMPANY:
CALORIES PER SERVINGS:
SERVING SIZE:
PRICE OF PACKAGE:
FOOD GROUPS REPRESENTED:

- Assemble empty food packages which contain nutritional information.

Instruction:

- Brainstorm a list of popular packaged foods. Use chart paper to record the list.
- Distribute sample food packages so each student has one. Give students practice reading the labels. Use questioning strategies that focus on comparing calories and serving sizes of the given packages.
- Refer to the spreadsheet activity. Point out to students how much exercise would be needed to balance eating one Kellogg's Pop Tart (280 calories) as opposed to a food with a lower calorie count.
- Ask students to select three foods from the list to research on their own either at home or in a grocery store.

- Have students enter the information they've collected into the database when they report back to the class.
- Instruct students to arrange the database in a meaningful way before they print out individual copies. Example sorts might be:
  - By calories, least to greatest
  - By calories, greatest to least
  - All foods under 200 calories

Follow-up Activities:

- Students may wish to add popular fast food items to their database. Encourage them to contact local franchises to obtain calorie and cost information for specific items.
- Have students prepare sample meals menus and add the total calories. Use the spreadsheet activity to find activities to balance the intake.

USING A WORD PROCESSOR

Objective:

- Use a word processor to write a business letter requesting nutritional information.

Student Prerequisite Skill:

- Familiarity with business letter format.

Setting the Stage:

- Gather resources students might write to for nutritional information. Your state Dairy Council, for instance, is an excellent source of information on dairy products. Other sources of free nutritional information can be found in the Educator's Guide to Free Materials, published annually.
- Compose a sample business letter on the word processor. Duplicate or make a transparency for classroom demonstration.

Instruction:

- Review the key components of a business letter with the class:
  - Return address
  - Inside address
  - Greeting (use "To Whom It May Concern")
  - Body
  - Closing
  - Signature
- Ask students to develop a list of their favorite foods.
- Have students go through class resources to find a company or organization that might supple them with nutritional information about one of these foods.
- Have students locate the address of the relevant organization.
- Review the word processing software, if needed.
- Teach the use of the TAB key to assist in lining up the return address and date on a business letter.
- Have students compose a business letter requesting nutritional information.
- Have students save and print out their first version. Correct and ask students to edit their letters to print another version. Repeat as necessary.

Follow-up Activity:

- Display copies of the original letters of request and the material received in the mail (including envelopes addressed to class members) on a bulletin board.

From Gross to Net

DESCRIPTION: In learning that net pay is less than gross salary, students use a spreadsheet to itemize and calculate deductions. A graphing tool allows students to produce a pie graph that shows how their gross salary is divided up.

USING A SPREADSHEET

Objective:

- Identify and verify gross pay, net pay, and deduction information found on paycheck stubs.
- Use a spreadsheet to calculate payroll deductions.

Student Prerequisite Skills:

- Familiarity with taxes.

Setting the Stage:

- Gather a selection of paychecks or paycheck stubs.
- Create a spreadsheet template, such as this one

Name _____
Class _____
Date _____

PAYROLL DEDUCTIONS WORKSHEET

DIRECTIONS: Use a computer spreadsheet to find the net amount paid to each of the following workers.

Social Security Number	Period Ending	Gross Earnings	F.I.C.A	State Income Tax	Federal Income Tax	NET AMOUNT
1. 074-40-1405	May25	183.00	27.38	2.38	7.66	___
2. 007-78-9098	Oct 5	391.35	49.81	7.78	58.34	___
3. 456-78-9101	Feb1	43.12	2.78	.89	3.11	___
4. 898-01-4040	Dec31	150.00	13.00	4.50	19.50	___

Instruction:

- Distribute sample checks and paystubs. Elicit discussion as to why the paycheck is smaller than the original amount paid.
- During the discussion, emphasize that some deductions are mandatory (federal taxes), and some are optional (life insurance)
- Review spreadsheet software with the class.
- Have students use the spreadsheet to verify the deduction information and pay amounts on the sample pay checks they've looked at.
- Ask students to use the spreadsheet to determine the net pay for workers on the "Paycheck Deductions" worksheet.

[ANSWERS: (1) 165.58 (2) 275.42 (3) 36.34 (4) 113.00]

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Follow-up Activity:

- Have an accountant speak to the group on how different companies calculate payroll deductions.

USING AN INFORMATION ORGANIZER (Graph maker)

Objective:

- Use graphing software to produce a pie chart that illustrates how gross pay is distributed.

Student Prerequisite Skills:

- Ability to read payroll deductions off of a paystub.

Setting the Stage:

- Gather examples of pie charts.
- Assemble a selection of paystubs.

Instruction:

- Using the sample pie charts, discuss the advantages of using pie charts to illutrate how gross pay is distributed. Point out that the hart shows how the original "pie" is cut up into smaller segments.
- Review the graphing software, such as MECC Graph (MECC) or Easy Graph II (Grolier) with students.
- Give each student a paystub from which to work. Have the students use the graph software to make a pie chart showing how the income on the stub they have has been subdivided.

Follow-up Activity:

- Obtain deduction information from the district payroll officer. Compare and contrast by making graphs of deductions for single people as opposed to people with dependents, using pie charts to illustrate the concept.

Easy Come, Easy Go

DESCRIPTION: Students build a database to organize a payment schedule for bills. They use a spreadsheet to keep a checkbook register to record the payment of bills.

USING A DATABASE

Objective:

- Students construct a payment schedule for a series of bills, using a database.

Student Prerequisite Skill:

- Familiarity with paying bills.

Setting the Stage:

- Prepare a database template, such as this one:

PAYMENT DUE (YR-MO-DAY): OWED TO: FOR: AMOUNT:

- Gather a selection of bills (gas, electric, insurance, telephone, etc.) with due dates on them.

Instruction:

- Distribute example bills so that each student has one. Ask students to find the due date and the amount due.
- List on the board (or make flashcards of) important vocabulary found on bills: INVOICE, AMOUNT DUE, PLEASE REMIT, INCLUDE STUB WITH PAYMENT, PAYMENT DUE BY, MAIL TO, INTEREST CHARGED AFTER.
- Practice with students until they are familiar with the terminology used on bills.
- Review the database software with students.
- Explain to students that computer databases commonly organize either alphabetically or numerically. Since the names of months are not in alphabetical order, they can be organized by number. Using a standardized two-digit format for both months and years, bills can be sorted by YEAR-MONTH-DATE. Show students that a sample database entry might be:
  PAYMENT DUE (YR-MO-DAY): 88-03-09
  OWED TO: New England Telephone
  FOR: monthly phone bill
  AMOUNT: $45.89

- Using the sample bills they've been given to look at, have each student enter their bills into the database and save the file.
- Ask students to rearrange and print a list of their bills in the order they are due or in the order they must be mailed.

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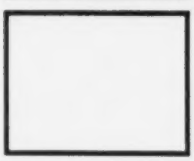

Follow-up Activity:

- For other examples of consumer math software see: Financial Cookbook (Southwestern Publishing), Survival Math (Sunburst Communications) or The Market Place (MECC).

USING A SPREADSHEET

Objective:

- Use a spreadsheet to record information in a checkbook register.

Setting the Stage:

- Ask a local bank to donate sample checkbook registers or, assemble a "Real Life Math Kit" with sample checks and registers.
- Develop a spreadsheet template, such as this one:

	A	B	C	D	E	F	G
01							
02	NUMBER	DATE	DESC	PAYMENT	DEPOSIT	BALANCE	
03	= = =

CHECK REGISTER WORKSHEET

Name _____

Class _____

Date _____

DIRECTIONS: Before you start, estimate which checkbook (A or B) will have the largest balance at the end of the month? My estimate is: _____

Enter the information for the five transactions in your spreadsheet. Print a copy of your final spreadsheet for each register.

CHECKBOOK A

A	B	C	D	E	F	G	H
01	NUMBER	DATE	DESCRIPTION		PAYMENT	DEPOSIT	BALANCE
02	= = =

Vacation Time

DESCRIPTION: Students develop their own vacation brochures and then develop a database featuring important information for the traveler.

USING A WORD PROCESSOR

Objectives:

- Using a word processor, write a travel brochure.

Student Prerequisite Skills:

- Familiarity with travel guides and brochures.

Setting the Stage:

- Collect travel posters and brochures. Be sure to include a variety of travel ideas, such as camping, resorts, hiking, etc.

Instruction:

- Distribute travel brochures to students and help them list the factual information contained in most of the brochures (for example: location, distance from the closest major city, cost, activities, age groups, accommodations, etc).
- Help students identify persuasive techniques used in brochures to make vacation spots appear attractive. Why might people want to visit there? What kinds of people would enjoy the place? Who would not enjoy it?
- Have each student select a vacation site for this project.
- Have students develop common headings for the brochure project.
- Allow students time to research their topics.
- Review word processing software, if necessary.
- Instruct students to develop their brochures using the word processor.
- When students finish writing their brochures, print them and share them with the whole class.

Follow-up Activity:

- Use a graphics program and magazine pictures to supplement the text in the brochure. Cut and paste for a finished product. Store the brochures in a visible area of the classroom.

USING A DATABASE

Objective:

- Compile a database of travel-related information.

Student Prerequisite Skills:

- Completion of the previous activity.

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Setting the Stage:

- Have a local travel agent come to the class and discuss vacation planning, costs for local travel for the sites for which students have written brochures.

Instruction:

- Lead students in a discussion of why it would be helpful to have a database on travel. Who would use it? How would it help them?
- Review travel brochures with the class. What information not contained in the brochures would they like to know (for example, costs, travel restrictions, shots needed, etc.).
- Invite a travel agent to the class to answer questions noted above.
- Have each student take notes on the travel agent's presentation, gathering information on the site they've worked on.
- As a group, have the class develop a database template, such as this one:

Site: Distance: What to do/see: Cost: Months open: Hours: Telephone #: Average weather conditions: Type of clothes: Shots needed: Restrictions:

- Review the database software with the class.
- Have each student create a file for the vacation site he or she has researched.
- Have students print the information.
- Compile the printouts in a companion volume to be housed next to the brochures.

Follow-up Activity:

- Use the information gathered to plan a class trip.

Greetings!

DESCRIPTION: Using a printing program, students produce greeting cards. With a spreadsheet they can predict what their expenses would be if they went into business.

USING A PRINTING PROGRAM

Objective:

- Use a printing program to produce greeting cards for specific holidays and occasions.

Student Prerequisite Skills:

- Ability to locate holidays on a calendar.
- Ability to match pictures (graphics) with holidays.

Setting the Stage:

- Collect examples of greeting cards for various holidays and special occasions.
- If your graphics package has a reference card for the available graphics, duplicate the card in advance so that each student has one.

Instruction:

- Brainstorm with students to compile a list of greeting card subjects (holidays and occasions) that might be popular.
- Lead the group to select the one subject from the list that is the most applicable at the present date. For instance, Valentine's Day would be a good choice if this lesson is in late January. Save the list for future reference.
- Discuss the example cards you brought in. Point out that the authors had to plan both the front and the inside spaces of their cards.
- Discuss the selection of messages. Point out that humorous cards often have a surprise on the second side.
- Distribute the graphics reference cards and ask for ideas for appropriate graphics that would convey the desired message. Require students to state a reason for their selection.
- Write the numbers of the graphics students suggest on the board.
- Distribute one sheet of construction paper to each student. Have them fold it in half to model a greeting card. Students can plan their card by writing down the number of the graphic they wish to use. If indicated, help students compose their messages.
- Tell students they may select one graphic for the outside of the card, and a different graphic for the inside. Using the graphics package, students should save their designs on a data diskette. You might call it the "warehouse" disk.
- Have students print out copies of their cards and share them with the group.

Follow-up Activity:

- Students can turn this capability into an enterprise by selling produced cards to their classmates or others. They can use printing programs to advertize the business as well.

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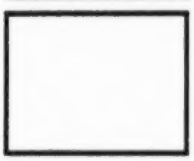

USING A SPREADSHEET

Objective:

- Use a spreadsheet to anticipate related expenses involved in producing greeting cards.

Student Prerequisite Skill:

- Completion of previous activity.

Setting the Stage:

- Gather data on the costs of producing cards at school.
- Prepare two separate spreadsheet templates ahead of time named "EXPENSES" and "INCOME." The following sample could be used to record the needed information:

A	B	C	D
01	GREETING CARD COMPANY EXPENSES		
02	= = =

Career Interests

DESCRIPTION: Students will complete activities to help them identify desirable work habits and attitudes. Using information organizing software, they conduct a survey and project their future goals on a timeline.

USING AN INFORMATION ORGANIZER (Survey Maker)

Objectives:

- Identify attitudes and behaviors that are desirable "on the job."
- Use survey maker software to interview business people about job-related behaviors.

Student Prerequisite Skill:

- Ability to conduct interviews.

Setting the Stage:

- Arrange with local business people for their cooperation in completing a questionnaire.
- Collect short stories about people's attitudes toward their jobs. Vignettes from Studs Terkel's Working might be appropriate.

Instruction:

- Read short stories to the class to illustrate the concept that attitude affects job performance.
- Arrange for class members to interview local business people (including parents), using the survey instrument.
- Have the class compose two lists:
  - (1) acceptable job behaviors, and
  - (2) unacceptable job behaviors.
- Using the list developed by the class, work as a group to construct a survey instrument similar to the one shown on the next page. Print copies for each member of the class.
- Have the students conduct the survey. Each student should interview three business people.
- Introduce survey maker software to the class, if they are unfamiliar with it.
- Have the class enter the results of the survey into the tally program. Print the results.
- As a class, have the students identify those behaviors cited most often as desirable and those behaviors identified as undesirable.

Follow-up Activity:

- Lead the class in a discussion of how job-related behaviors relate to school-related behaviors.

LEVEL

M

CONTENT

C

SOFTWARE

IO

USING AN INFORMATION ORGANIZER (Timeline Maker)

Objectives:

- Identify the relationship between career choice and preparatory goals.
- Use a timeline to plot career objectives.

Student Prerequisite Skill:

- Ability to order events.

Setting the Stage:

- Review the meaning of an autobiography and how it relates to the present timeline activity. Gather appropriate biographical materials.
- Show students examples of timelines.

Instruction:

- Ask students to think about their future 5, 10, 15, and 20 years from the present. Brainstorm predictions of things that will change and how those things might affect them.
- Review the components of a timeline.
- Read a short biography of a well-known person that contains enough details to complete a timeline on that person. One good source is Cradles of Eminence (Little-Brown).
- Review timeline software with students.
- As a group, complete a timeline on this person's life. Print out copies for the class.
- Using the timeline, lead a discussion on how events in the primary character's life influenced what he or she did later in life.
- Have students complete a sample timeline of their own lives, using the software. To do this, help students develop a timeline similar to the one on the next page.

Follow-up Activity:

- Have students look at their own timelines later in the year. Have their goals changed? Do the timelines need to be amended?

WORKSHEET: CAREER INTERESTS SURVEY

Employer s- Desirable and Undesirable Work Behaviors

Company _____
Name of Manager _____

Please circle the 5 most desirable and the 5 least desirable behaviors and attitudes that you believe influence a person's on-the-job performance.

Desirable	Undesirable
Coming to work on time every day	Coming late to work
Being pleasant and cooperative	Lying about your work
Being dependable	Calling in sick during times of heavy work
Being able to get the job done	Complaining to the boss about others
Being honest	Using bad language on the job
Respecting other people's property	Not showing up for work without calling in
Offering to work late if work is piled up	Turning in work late
Offering to learn something new to help out	Forgetting to do an important job
Asking for help if the task is unclear	Combing hair or putting on makeup at the desk
Being nice to co-workers	Taking long breaks
Having good personal hygiene	
Behaving in a mature manner	Other: _____
Other:_____	

WORKSHEET: PERSONAL TIMELINE

Name _____

Class _____

Date _____

The Times of Your Life

Complete the timeline below. Enter important events that have taken place in your life from your birth to the present time. Then, predict your future 30 years from today. (Hint: decide what your career might be and what you have to do to achieve your goal.)

Career goal: _____
Education required: _____
Other training: _____

Birth date _____ Important Events

Birth

10 years

15 years

20 years

25 years

30 years

40 years

50 years

Local Jobs

DESCRIPTION: Students use a word processor to record information on jobs and a database to compile and compare job information.

USING A WORD PROCESSOR

Objective:

- Use a word processor to write up researched information on careers.
- Match jobs to clusters

Student Prerequisite Skills:

- Ability to use resource materials.
- Ability to categorize.

Setting the Stage:

- Gather job information resource material for students to use, including the Department of Education's Occupational Career Clusters and newspaper classified ads.
- Develop a worksheet similar to the one below for students to use with this lesson:

Occupations in Career Clusters
(Partial listing)

(Occupations in Career Clusters)
AGRI-BUSINESS AND NATURAL RESOURCES
Characteristics: involves things
Jobs: nursery worker, farmer, florist, park worker, botanist, meteorologist

BUSINESS AND OFFICE
Characteristics: involves people
Jobs: office worker, accountant, bank clerk, computer operator, receptionist

COMMUNICATION & MEDIA
Characteristics: involves people
Jobs: reporter, radio repair person, telephone operator, announcer, commercial artist

CONSTRUCTION
Characteristics: involves things
Jobs: carpenter, plumber, architect, bricklayer, painter, heavy equipment operator

LEVEL

H

CONTENT

C

SOFTWARE

WP

DB

Instruction:

- Discuss the importance of having background information on different types of jobs.
- Have students identify how job descriptors influence their interest in that job.
- Present a sample job description from the resource material to the class.
- From the description, have the students identify the major characteristics of that job.
- Ask the students to come up with three other jobs that could be related to this job. For instance, if you have been talking about a bricklayer, related jobs might be heavy equipment operator, carpenter, and painter. All of these jobs are related in some way to construction work.
- Hand out the worksheet.
- Divide students into pairs. Assign each pair a job category to research.
- For each category, students should list at least four related jobs within the cluster.
- Review word processing software, if necessary.
- Have the students enter the researched information into the computer.
- As the students complete this effort, have them print out the reports and share them with the class. Be sure each group notes how one job within a given category relates to another.
- The compiled reports can be stored in a binder for student reference throughout the year.

Follow-up Activities:

- Assign students additional jobs to research within the cluster they've worked in.
- Invite representatives who work in the fields researched to speak to the class about their work. After these people have spoken, have the students update their files to incorporate new information learned.

USING A DATABASE

Objectives:

- Compile a database on local job/career information.

Student Prerequisite Skills:

- Ability to use reference books to locate job information.

Setting the Stage:

- Assemble print resources for students to use as research sources, such as the Occupational Outlook Handbook, Career World magazine, pamphlets and job information from the school career or media center.
- Arrange to use the media center for the research project, if necessary.
- Create formats for students to use, for example:

JOB TITLE:
CLUSTER:
SALARY RANGE:
EDUCATION REQUIRED:
TRAINING REQUIRED:
SKILLS REQUIRED:
JOB DUTIES:
DUTIES1:
DUTIES2:
WORKING CONDITIONS:
DRESS REQUIREMENTS:
BENEFITS:
OTHER SOURCES OF INFORMATION:

- Arrange with local businesses for students to obtain information.

Instruction:

- Hold a discussion on what students think would be important to know about a job before pursuing it.
- Record student suggestions on the chalkboard.
- Review database software with students.
- Present the research worksheet for building a database.
- Have students brainstorm for a few minutes to decide if there are additional categories they would like to include in their research. If so, adjust the worksheet accordingly.
- Assign students to teams to research several jobs within a job cluster. For their research, encourage students to use the school media center as well as classroom resources. If the previous activity has been completed, students can use these descriptors.
- Have the students report the results of their research to the class. Class members can then vote on which information should be included in the database.
- Have the students select a member of their group to type the database information into the computer.
- Develop a variety of report formats for students to use for printing a class resource manual. Jobs can be listed by cluster, working condition, level of education required, etc.

Follow-up Activities:

- Arrange for students to "shadow" someone involved in their career interest. Have students record five major duties they observe during the day. Instruct students to add this information to the database.
- Develop a college preparatory/post-high school training database. Include categories such as:
  CAREER INTEREST:
  DEGREE NEEDED:
  HIGH SCHOOL COURSES NEEDED:
  COLLEGES/SCHOOLS WITH TRAINING:
  AVAILABLE FINANCIAL ASSISTANCE:

APPENDICES

APPENDIX A:
Software mentioned in this guide, by company*

Activision
Greeting Card Company (PR,G)

Apple Computer, Inc.
AppleWorks (WP, DB, SS) **
AppleWriter (WP)

Broderbund Software
Award Maker Plus (PR)
Print Shop (PR)
Print Shop Companion (PR)
Temperature Probe
Science Tool Kit (IO:G)
Where in the World is Carmen Sandiego?

Grolier Electronic Publishing
Easy Graph (IO:G)
EduCalc (SS)
Friendly Filer (DB)
Friendly Files - Science and Nature
Notetaker (IO:N)

ExSym
The Electronic Mailbag

Hartley
Print Your Own Calendar (IO:C)
Super Wordfind (PR)
What's First
Word Search (PR:P)

HRM Software
Cardiovascular Fitness
Guess My Rule

Holt
Mathematics Unlimited
Voyage of the Mimi

McGraw-Hill
McGraw-Hill Problem Solving Software

MECC
MECC Graph (IO:G)
The Marketplace

Milliken Publishing Company
Milliken Word Processor (WP)

Mindscape
Bank Street Storybook (WP)
Crossword Magic (PR:P)
Hinky Pinky Game (Learning Well/Mindscape)
Health Watch
My Very Own Calendar (IO:C)
Principal's Assistant (PR)
Riddle Me (IO:S)
Surveys Unlimited (IO:S)
Wordmaze (PR:P)

Pinpoint
Pinpoint (IO)

Scholastic Software
Bank Street Writer III (WP)
Curriculum Data Bases - Life Science
pfs: Graph (IO:G)
pfs: File (DB)
Math Shop
Survey Taker (IO:S)
Talking Text Writer (WP)

South-Western Publishing Co.
Financial Cookbook (SS)

Springboard Software
Certificate Maker (PR:A)
The Newsroom (WP:P) **

Sunburst Communications
Bank Street Filer (DB) *
Kings Rule
Magic Slate (WP)
Memory Castle
Power Drill
SemCalc: The Word Problem Solver
Survival Math

Tom Snyder Productions
Time Liner (IO:T)

Refer to the Software Cross-Reference Chart, page 11, for the key.

* Software that has no notation is educational software, not tool software.
** These programs are not mentioned by name in a lesson, but they are commonly found in schools and teachers may wish to consider using them.

APPENDIX B:
Publishers

Aldus Corp.
411 First Avenue
Seattle, WA 98104

Apple Computer Inc.
20525 Mariani Avenue
Cupertino, CA 95014
408-996-1010

Arcturus
50 Beharrell Street
West Concord, MA 01742
617-369-5360

Artic Technologies
2234 Star Court
Auburn Heights, MI 48057

Baudville
1001 Medical Park Drive, SE
Grand Rapids, MI 49506
616-957-3036

Broderbund Software, Inc.
17 Paul Drive
San Rafael, CA 94903

C&C Software
5713 Kentford Circle
Wichita, KS 67220
316-683-6056

Channelmark Corporation
2929 Campus Drive, Post Office Box 7600
San Mateo, CA 94403
800-851-2917

Communication Publishers
Route 4, Box 263
Hillsville, VA 24343
703-766-3869

Computer Aided Instructional Systems
Box 177, Building 5, Service Drive
Holly, MI 48442

Computer Aids Corporation
124 West Washington, Suite 220
Fort Wayne, IN 46802
219-422-2424

Computer Diskcourse
Suite 204, 10145 - 121 Street
Edmonton, AB, CANADA, T5N 1K5
403-488-4763

D.C. Heath
125 Spring Street
Lexington, MA 02173
617-860-1421

D.C. Heath & Co.
125 Spring Street
Lexington, MA 02173
617-860-1572

DLM Teaching Resources
One DLM Park
Allen, TX 75002
800-527-5030

DLM, Inc.
One DLM Park
Allen, TX 75002
800-527-5030

Data Transforms
616 Washington Street
Denver, CO 80203

Exsym
2728 23rd Street
Greeley, CO 80631
303-330-8021

Field Publications
245 Long Hill Road
Middletown, CT 06457
800-852-5000

Finally Software
4000 MacArthur Boulevard, Suite 3000
Newport Beach, CA 92663
714-854-4434

First Byte, Inc.
2845 Temple Avenue
Long Beach, CA 90806
800-523-8070

First Star Software, Inc.
18 East 41st
New York, NY 10017
212-532-4666

General Electric
Electronics Park
Syracuse, NY 13221
315-456-2152

Grolier Electronic Publishing, Inc.
Sherman Turnpike
Danbury, CT 06816
800-858-8858

HRM Software
175 Tompkins Avenue
Pleasantville, NY 10570
800-431-2050

HRM Software, Inc.
175 Tompkins Avenue
Pleasantville, NY 10570
914-769-6900

Harbor Software, Inc.
403 Great Road, Suite Eight
Acton, MA 01720
617-263-1870

Hartley Courseware, Inc.
Post Office Box 431
Dimondale, MI 48821
517-646-6458

Holt, Rienhart and Winston
383 Madison Avenue
New York, NY 10017
212-872-2000

IBM
Post Office Box 1328-W
Boca Raton, FL 33432

Image Amplification
POB 699, 30 Chapin Road
Pine Brook, NJ 07058
201-882-0584

KY Enterprises/Custom Computer Software
3039 East Second Street
Long Beach, CA 90803
213-433-5244

Koala Technologies
2065 Junction Avenue
San Jose, CA 95131
800-KOA-BEAR

Krell Software
Flowerfield Bldg, No. 17, Suite 1D
St. James, NY 11780
800-245-7355

Kurzweil Applied Intelligence
411 Waverley Oaks Road
Waltham, MA 02154
617-893-5151

Learning Well
200 South Service Road
Roslyn Heights, NY 11577
800-645-6564

Letraset USA
40 Eisenhower Drive
Paramus, NJ 07653
201-845-6100

MCE, Inc.
157 South Kalamazoo Mall, Suite 250
Kalamazoo, MI 49007
800-345-8681

MECC
3490 Lexington Avenue, North
St. Paul, MN 55126
612-481-3640

McCarthy-McCormick, Inc.
1440 Oak Hills Drive
Colorado Springs, CO 80919
303-598-5579

McGraw-Hill Book Co.
1221 Avenue of the Americas
New York, NY 10020
800-223-4180

Milliken Publishing Co.
1100 Research Boulevard
St. Louis, MO 63132
314-991-4220

Mindscape, Inc.
3444 Dundee Road
Northbrook, IL 60062
312-480-7667

National Public Domain Software
1533 Avohill Drive
Vista, CA 92083
619-727-1015

Panasonic
One Panasonic Way
Secaucus, NJ 07094
201-348-7000

Paperback Software International
2612 Eighth Street
Berkeley, CA 94710
415-644-2116

Personal Touch Corporation
4320-290 Stevens Creek Boulevard
San Jose, CA 95129
408-246-8822

Peter Li, Inc.
2451 East River Road
Dayton, OH 45439

Peter Scialli
Post Office Box 7986
Houston, TX 77270
713-461-1666

Pinpoint Publishing
Box 13323
Oakland, CA 94661
415-654-3050

Polarware/Penguin Software
Post Office box 311, 521 Hamilton St.
Geneva, IL 60134
312-232-1984

Prentke Romich Co.
1022 Heyl Road
Wooster, OH 44691
216-262-1984

Radio Shack Education Division
1600 Tanky Center
Fort Worth, TX 76102
817-390-3302

Regents Publishing Company
Two Park Avenue
New York, NY 10016
800-822-8202

RoseSoft, Inc.
Post Office Box 45800
Seattle, WA 98145

Scholastic, Inc.
730 Broadway
New York, NY 10003
212-505-3000

Software Publishing Corp.
1901 Landings Drive
Mountain View, CA 94043

South-Western Publishing Company
5101 Madison Road
Cincinnati, OH 45227
800-543-0487

Spinnaker Software
One Kendall Square
Cambridge, MA 02139
800-826-0706

Springboard Software, Inc.
7808 Creekridge Circle
Minneapolis, MN 55435
612-944-3912

Street Electronics Corporation
1140 Mark Avenue
Carpinteria, CA 93013
805-684-4593

Studio Software
17862-C Fitch
Irvine, CA 92714
714-474-0131

Sunburst Communications, Inc.
39 Washington Avenue
Pleasantville, NY 01570
800-431-1934

Technical Education Research Centers (TERC)
1696 Massachusetts Avenue
Cambridge, MA 02138
617-547-0430

Terrapin, Inc.
222 Third Street
Cambridge, MA 02142
617-492-8816

Tom Snyder Productions, Inc.
123 Mount Auburn Street
Cambridge, MA 02138
617-876-4433

Unison World, Inc.
Post Office Box 3056
Berkeley, CA 94703
415-848-6666

Votrax, Inc.
1395 Rankin
Troy, MI 48083
800-521-1350

Walt Disney Personal Computer Software
10316 NW Prarie View Road
Kansas City, MO 64153
800-423-2555

APPENDIX C:
Informational Resources

Association for the Development of Computer-Based Instructional Systems (ADCIS)
Miller Hall 409
Western Washington State College
Bellingham, WA 98225
International organization for professionals in instructional technology. Educators of the Handicapped is one of its special interest groups.

Center for Computer Assistance to the Disabled (C-CAD)
2501 Avenue J, Suite 100
Arlington, TX 76006
817-640-6613
A nonprofit organization that focuses on the development of new computer applications to help the disabled and trains the disabled in the use of computers

Council for Exceptional Children 1920 Association Drive Reston, VA 22091 703-620-3660
A professional organization of teachers that sponsors the Center for Special Education Technology, Project RETOOL for teachers for teachers to learn to use microcomputers in special education. Technology and Media (TAM) is a division of CEC that publishes The Journal of Special Education Technology and conducts teacher conferences, workshops and training programs. TECH-TAPES is an audio tape service that briefs people unfamiliar with technology with introductory messages about microcomputer usage and assistive device technology.

Closing the Gap Post Office Box 68 Henderson, MN 56004
612-248-3294
Publishes Closing The Gap, a newsletter that provides information of technology for the handicapped and disabled and an annual Resource Directory that has become one of the most highly referenced resources for teachers and parents of children with special needs.

Handicapped Education Exchange (HEX)
11523 Charlton Drive
Silver Spring, MD 20902
301-681-7372
A microcomputer-based electronic mail system providing information on technology for the handicapped and serving as an electronic mail system for the hearing impaired.

International Council for Computers in Education (ICCE)
University of Oregon
1787 Agate Street
Eugene, OR 97403
503-686-4414
A professional organization of educaors using computers in the classroom. Has a special interest group for special educators (SIGSPED) which publishes a quarterly SIG Bulletin.

LINC Resources, Inc. 3857 North High Street Columbus, OH 43214
800-327-5892
Publishes SpecialWare Directory, a resource guide for special educators, which describes courseware and software for special education.

MicroSIFT, NW Regional Educational Lab
300 SW Sixth Avenue
Portland, OR 97204
503-248-6800
A federally funded clearinghouse for information on educational technology. MicroSIFT publishes a quarterly report comprising product descriptions and reviews.

Minnesota Educational Computing Consortium (MECC)
2520 Broadway Drive St. Paul, MN 55113 612-481-3500
An organization that provides public domain software and shareware to educational institutions through subscriptions.

National Easter Seal Society
2023 West Ogden Avenue
Chicago, IL 60612
312-243-8400
Publishes the newsletter Computer-Disability News: The Computer Resource for People with Disabilities.

National Information Center for Handicapped Children and Youth
Post Office Box 1492
Washington, DC 20013
703-522-3332
A free information and referral service for parents and educators of handicapped children and youth. Information packets are available regarding the use of technology.

National Institute for Rehabilitation Engineering
97 Decker Road
Butler, NJ 07405
201-838-2500
A nonprofit organization providing information and educational software to those who work with the learning disabled or physically handicapped.

National Rehabilitation Information Center (NARIC)
Macro Systems, Inc.
8455 Colesville Road, Suite 935
Silver Spring, MD 20910
301-588-9284 or 800-346-2742

Technical Education Research Centers (TERC)
1696 Massachusetts Avenue
Cambridge, MA 02138
617-547-0430
Provides information about and offers workshops on computer use in special education.

Trace Research and Development Center,
University of Wisconsin
314 Waisman Center, 1500 Highland Avenue Madison, WI 53706
608-258-7070
Provides information on development of nonvocal communication and computer access for handicapped individuals.

Special Education Programs
Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, CA 95014
408-996-1010
Apple's internal group working with special educators to meet the needs of handicapped people via computer technology. Operates AppleLink, an online resource that includes a forum Special Education Solutions, which contains thousands of adaptive devices, software programs, publications, disability-related organizations and networks.

SpecialNet
National Association of State Directors of Special Education
1201 16th Street, NW, Suite 610E Washington, DC 20036
202-296-1800
An electronic network for special educators providing information and communication for persons concerned with services and programs for handicapped students.

Resources in Computer Education
Bibliographic Retrieval Services
1200 Route 7
Latham, NY 12110
800-833-4707
An electronic database focused on research and implementation of computers in education.

Regional Special Education Software Centers

East: Chauncey Rucker
ConnSENSE
University of Connecticut
U-64 Storrs, CT 06228
203-486-4031

Midwest: Judy Wilson
Microcomputer Information Coordination Cebter
139 C.R.U.
University of Kansas Medical Cneter
39th and Rainbow
Kansas City, KS 66103
913-588-5985

South: Eileen Pracek
FDLRS/EAST
1450 Martin Boulevard
Merritt Island, FL 32952
305-631-1912

West: Kim Allard
SECTOR Project, UMN 68
Utah State University
Logan, VT 84322
801-753-7973

APPENDIX D:
Selected Resources in Print

Publications

CHIME
Clearinghouse of Information on Microcomputers in Education
College of Education, Oklahoma State University
108 Gundersen
Stillwater, OK 74078

Classroom Computer Learning
Peter Li, Inc.
2169 Francisco Boulevard, East, #4A
San Rafael, CA 94901

Closing the Gap
Post Office Box 68
Henderson, MN 56044

Communication Outlook
Computer Science Department
Michigan State University
East Lansing, MI 48824

The Computing Teacher
Computer and Information Science Department
University of Oregon
1787 Agate Street
Eugene, OR 97403

Educational Technology
720 Palisade Avenue
Englewood Cliffs, NJ 07632

Electronic Education
Suite 220, 1331 Executive Center Drive
Tallahassee, FL 32301

Electronic Learning
Scholastic, Inc.
902 Sylvan Avenue
Post Office Box 2001
Englewood Cliffs, NJ 07632

Family Computing
730 Broadway
New York, NY 10003

Journal of Special Education Technology
Developmental Center for Handicapped Persons
Utah State University
Logan, UT 84322

T.H.E. Journal
Post Office Box 992
Acton, MA 01720

Selected Books

Apple Computer Resources in Special Education and Rehabilitation, Apple Computer's Office of Special Education (Catalog number G6500Z. DLM Resources, Inc., Post Office Box 4000, Allen, TX 75002.

Communication, Control and Computer Access for Disabled and Elderly Individuals: Resource Book 4, Hardware and Software, S.A. Brandenburg and G. Vanderheiden. College Hill Press and Trace Research and Development Center, University of Wisconsin, S-151 Waisman Center, 1500 Highland Avenue, Madison, WI 53705.

Handbook of Microcomputers in Special Education, Michael Behrmann (editor). College Hill Press, 4284 41st Street, San Diego, CA 92015.

Making an Exceptional Difference: Enhancing the Impact of Microcomputer Technology on Children with Disabilities, Harvey Pressman (editor). The Exceptional Parent, 605 Commonwealth Avenue, Boston, MA 02215.

Personal Computers and Special Needs, Frank G. Bowe. Sybex, Inc., 2344 Sixth Street, Berkeley, CA 94710.

Quick Guide to Resources in Special Education Technology, Bob Reid and Diane Shepard. From the SECTOR Project, Utah State University (with the San Mateo County Office of Education), Logan, UT 84322.